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AN 01-1-40 A. P. No. 2395A

HANDBOOK OF

WEIGHT and BALANCE DATA

MODEL_____AIRPLANE

SERIAL NO.____ONLY



NOTE: This Handbook replaces Identifying Order No. 01-1-40 dated February 13, 1943, and the Handbook of Weight and Balance Data dated October 10, 1942, and reissue dated April 5, 1943.

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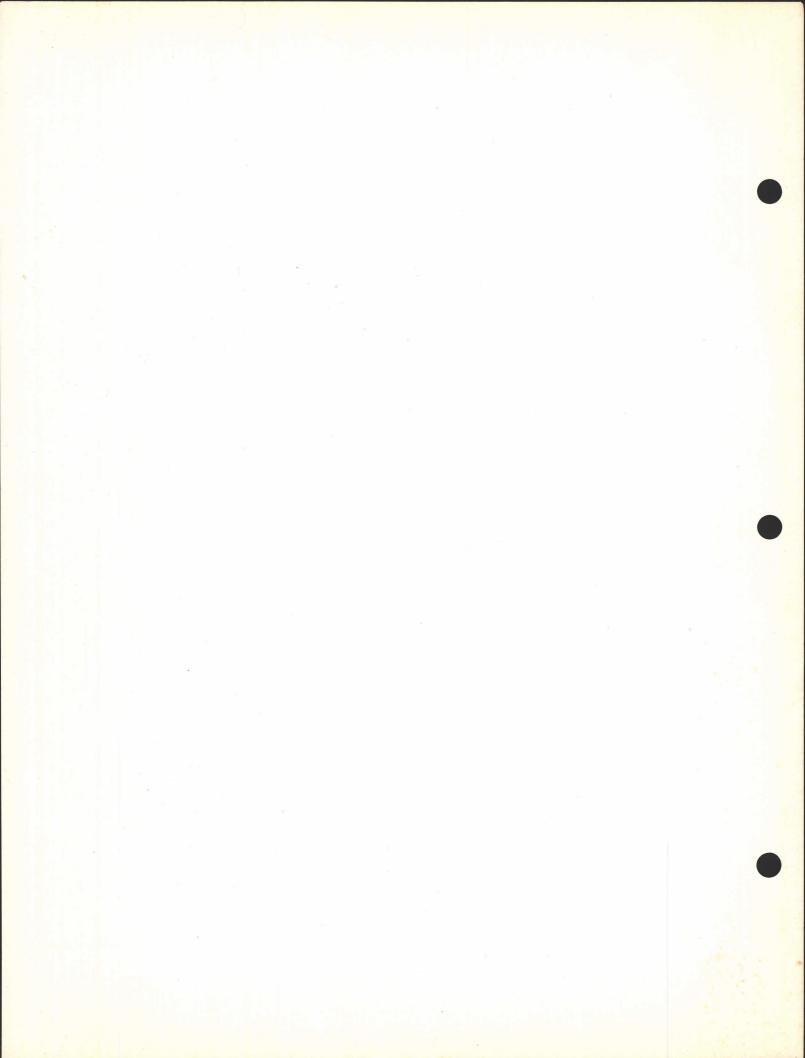


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RESTRICTED AN 01-1-40

WEIGHT and BALANCE CONTROL RECORD WEIGHT AIRPLANE MODEL

and BALANCE

OFFICERS

 SERIAL NO.	

MFR. SERIAL No.

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ARMING

It is important

It is important to remember that the records for each aircraft are different, and data listed in the form provided herein apply only to the individual airplane whose serial number appears on both the title page and the Weight and Balance Control Record Sheet.

FOR AAF
PERSONNEL

This book must remain in the data case of the airplane whose serial number appears on the title page.

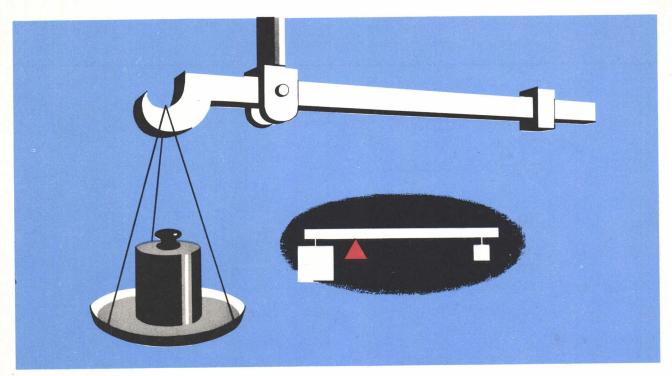
It is as much an integral part of the ship's records as
its Form No. 1. This is required by AAF Regulation
55-3 and is to be adhered to by all activities.

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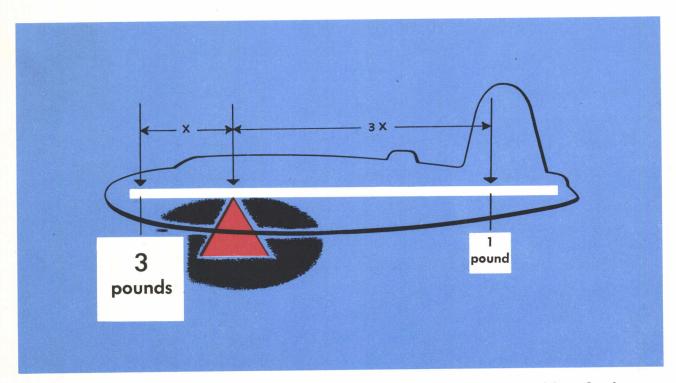
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III



The familiar steelyard scale demonstrates the fundamental principle of weight and balance.



In an airplane, like the steelyard scale, proportion is secured by placing the various load items at the right distance from the center of balance.

WEIGHT AND BALANCE MANUAL

SECTION-1



INTRODUCTION

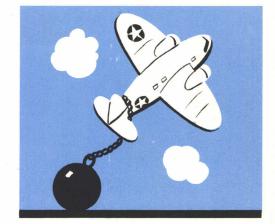
The day is past when a pilot flies by the seat of his pants. One by one the decisions that were made by intuition or hunches have been taken over by an orderly system based on knowledge and understanding. The invariable result has been greater safety and operating efficiency.

The loading of aircraft, especially heavy aircraft, is no exception. The everchanging conditions of modern plane operation, resulting in more and more complex combinations of cargo, fuel, crew, and armament, have outmoded old rule of thumb methods. The necessity for getting the utmost in efficiency out of any given flight has highlighted the need for a precise system of control over the weight and balance of aircraft. Rapidly changing conditions require the greatest flexibility from all types of airplanes, and rigid methods, incapable of meeting the ever-changing requirements of modern operations, are completely inadequate.

Improper loading, at best, cuts down the efficiency of an airplane from the standpoint of ceiling, maneuverability, rate of climb, and speed. At worst, it can be the cause of failure to complete a flight, or for that matter, failure even to start it, with probable loss of life and destruction of valuable equipment, because of abnormal stresses it can place upon the airplane's structure or because of

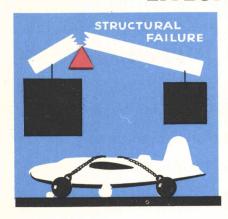
changed flying characteristics of the airplane.

The purpose of this Handbook is to provide a standardized and simple method for computing the correct loading of an airplane and also to create a permanent record of these data for the benefit of subsequent operators and pilots.



1

EFFECT OF IMPROPER LOADING







OVERLOADING

- 1. Causes a higher stalling speed.
- 2. Always results in lowering of airplane structural safety factors which may be critical during rough air or take-offs from poor fields.
- 3. Reduces maneuverability.
- 4. Increases take-off run.
- 5. Lowers angle and rate-of-climb.
- 6. Decreases ceiling.
- 7. Increases fuel consumption for given speed (decrease in miles per gallon).
- 8. Lowers tire factors.

CG TOO FAR FORWARD

- 1. Increases fuel consumption (less range).
- 2. Increases power for given speed.
- 3. Tends to increase dive beyond control.
- 4. Might cause critical condition during flap operation.
- 5. Increases difficulty in getting tail down during landing.
- 6. Overstresses nose wheel.
- 7. Results in dangerous condition if tail structure is damaged or surface is shot away.

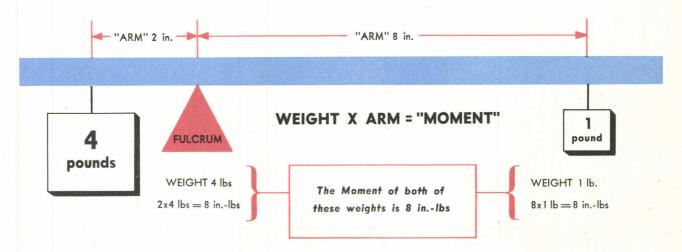
CG TOO FAR AFT

- 1. Creates neutrally stable to unstable condition.
- 2. Increases stall tendency.
- 3. Definitely limits low power; might affect long range optimum speed adversely.
- 4. Decreases speed.
- 5. Decreases range.
- 6. Increases pilot strain in instrument flying.
- 7. Results in a dangerous condition if tail structure is damaged or surface is shot away.



PRINCIPLES OF BALANCE

The theory of aircraft weight and balance is extremely simple. It is that of the old familiar steelyard scale which is in equilibrium or balance when it rests on the fulcrum in a level position. It is apparent that the influence of weight is directly dependent on its distance from the fulcrum and that the weight must be distributed so that the turning effect is the same on one side of the fulcrum as on the other. A heavy weight near the fulcrum has the same effect as a lighter weight farther out on the bar. The distance of any object from the fulcrum is called its <u>arm</u>. This distance, or arm, multiplied by the weight of the object is its turning effect, or moment, exerted about the fulcrum.



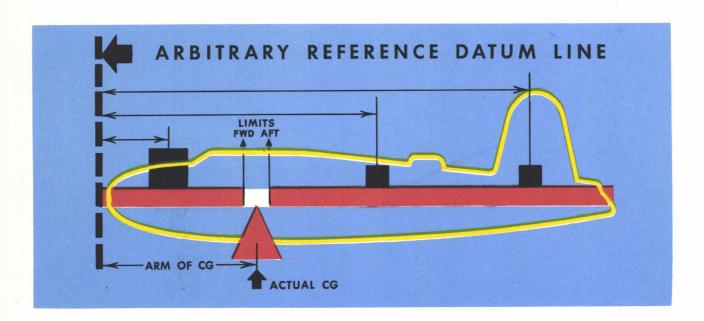
Similarly, an airplane is balanced when it remains level if suspended at a certain definite point or ideal center of gravity (cg) location. Unlike a steelyard, it is not necessary that an airplane balance so that it is perfectly level, but it must be reasonably close to it. This allowable variation is called the cg range and the exact location, which is always near the forward part of the wing, is

specified for each airplane model. Obtaining this balance is simply a matter of placing loads so that the average arm of the loaded airplane falls within this allowable cg range. Heavy loads near the wing location can be balanced by much lighter loads at the nose or tail of the airplane. The moments determine this exactly.



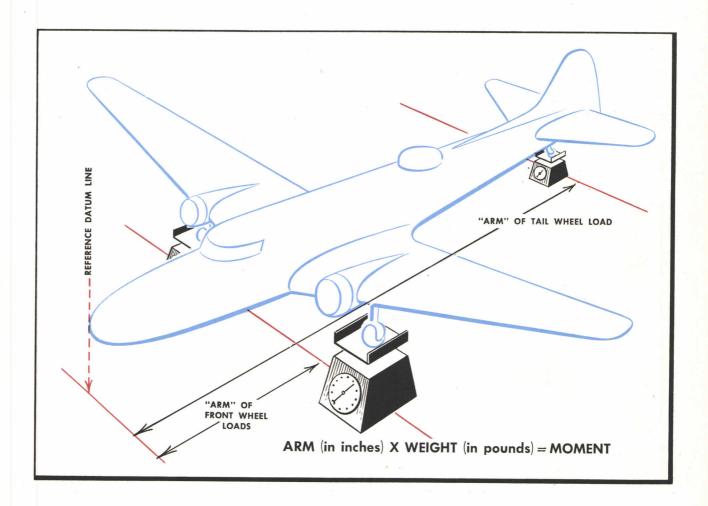
In practice, it has been found desirable to measure all distances from an arbitrary reference datum line at or near the nose of the airplane. By measuring arms in the same direction all moments become positive, thus eliminating possible errors in adding plus and minus moments that result from a reference datum line located within the limits of the airplane.

When the total moment about this reference datum line is divided by the total weight, the resulting arm is the distance to the center of balance, or center of gravity, from the reference datum line. This would be the location of the fulcrum as illustrated below on the balanced steelyard scale. If the cg falls within the cg limits, expressed as forward limit and aft limit, the loading is satisfactory. If not, the load must be shifted until the cg does fall within the limits.



For flight, since the wing supports the airplane's weight, it is obvious that the cg must remain within safe allowable limits; otherwise, the tail surfaces could not properly control the path of flight. These limits are determined by actual test flight. Limits are usually expressed as a percentage of the mean aerodynamic chord of the wing (% M.A.C.). However, for weight and balance purposes, and in this Handbook, the limits are given in inches from the reference datum line.

To obtain the gross weight and the cg location of the loaded airplane, it is necessary first to know the basic weight and the cg location of the airplane. This may be found by weighing the airplane as described in section 2. This weighing should be with the airplane in its basic condition; that is, with fixed normal equipment which is actually present in the airplane, less fuel.



When the weight, arm, and moment of the basic airplane are known, it is not a difficult matter to compute the effect of fuel, crew, cargo, armament, and expendable weight as they are added. This is done by adding all the moments of these additional items to the total moment found by weighing the airplane and dividing by the sum of the basic weight and the weight of these additional items. This gives the cg for the newly loaded airplane. This calculation can be performed by arithmetic, by loading graphs, or by a balance computer.

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LOADING GRAPHS

Loading graphs and detailed instructions for their use are included in section 7 of this Handbook to provide an easy means of determining the loaded cg position of the airplane. These graphs are intended for use when the balance computer is not available.

BALANCE COMPUTERS

To simplify the work of determining the loaded cg of the airplane, a balance computer is provided for certain types of airplanes, such as bombers, transports and patrol bombers, which may be easily unbalanced by improper loading, and which carry such a large number of variable load items that calculation of their loaded cg by arithmetic or with the aid of loading graphs might be a somewhat lengthy and tedious process. There have been several types of computers used for this purpose; however, the Load Adjuster has been adopted as the standard computer for both the Army and the Navy. Instructions for using the Load Adjuster are included in Appendix I of this Handbook.

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DEFINITIONS

The following definitions will serve as standardized terminology for all data in the practical application of this system. It is important to know them thoroughly.

WEIGHT. - The weight is 16 ounces per pound, avoirdupois weight. All weights are to be calculated to the nearest whole pound.

BASIC WEIGHT. - The weight of the airplane, including all equipment that has a fixed location and is actually present in the airplane; that is, air frame; power plant and accessories; trapped fuel and oil; full hydraulic, cooling and anti-icing fluid systems and reservoirs; armor plate, ordnance (less ammunition and bombs); chemical, navigation, oxygen, pyrotechnics, and radio equipment. It never includes items commonly referred to as "disposable."

NOTE: The basic weight of an airplane varies with modifications and changes in the fixed equipment. This is not to be confused with empty weight which is a dry weight with certain contract equipment only. The term "basic weight," when qualified with a word indicating the type of mission, such as "basic weight for combat, for ferry, for transport, etc.," may be used in conjunction with directives stating what the equipment shall be for these missions; for example, extrafuel tanks and various items of equipment installed for long range ferry flights but not normally carried on combat missions which will be in "Basic Weight for Ferry" but not in "Basic Weight for Combat."

GROSS WEIGHT. - The total weight of an airplane and its contents.

REFERENCE DATUM LINE. - An imaginary vertical line at or near the nose of the airplane. Its location is chosen by the manufacturer as a standard line from which all horizontal distances are measured for balance purposes. Diagrams of each airplane show this reference line as zero.

ARM. - For balance purposes, arm is the horizontal distance in inches from the reference datum line to the cg of the item.

MOMENT. - The weight of an item multiplied by its arm.

AVERAGE ARM. - Average arm or location is obtained by adding the weights and the moments of a number of items, and dividing the total moment by the total weight.

BASIC MOMENT. - The sum of the moments of all items making up the basic weight. When using data from an actual weighing of an airplane, the basic moment is the sum of the moments around the reference datum line. For simplicity, it is permissible to divide the moment by a constant so as to reduce the number of digits. If this is done, the same constant must be used consistently for <u>all</u> computations, and must be indicated in the moment column on charts A, B, and C.

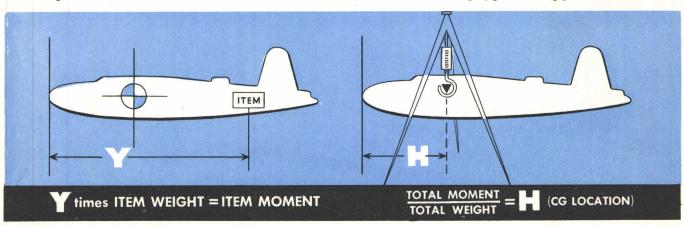
CENTER OF GRAVITY. - The point about which an airplane would balance if suspended. Its distance from the reference datum line is found by dividing the total moment by the gross weight of the airplane.

CG LIMITS. - The range of movement which the cg can have without making the airplane unsafe to fly. It is determined by actual test flights. The cg of the loaded airplane must be within these limits at take-off, in the air and on landing. In some special cases a "Landing Limit" is specified. On loading graphs the cg limits are indicated by cg limit lines. In all cases, the cg condition should be checked for landing without fuel and bombs.

LOADING RANGE. - The safe cg location under any load condition. It is shown on the balance computer as the white section labeled "Loading Range."

TARE. - Weight of equipment necessary for weighing the airplane (chocks, blocks, slings, jacks, etc.) which has been included in the scale readings but is not a part of the basic weight.

BALANCE COMPUTER INDEX. - A number representing the moment which, when considered in conjunction with the weight, gives the cg position.



	BASIS					
	BASIC W	EIGHT				
	AIRPLANE MODEL	SERIAL NO	CHECK	LIST		
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and forms w	hich are neces-					
sary in order	r to keep an ac-					
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SECTION 2



CHARTS and FORMS

Any systematic operation in which records are kept requires the use of charts and forms. This system is no exception. They are not, as might be suspected, designed to harass the operator with a blizzard of paper work, but rather to provide him with organized data with which to do his job.

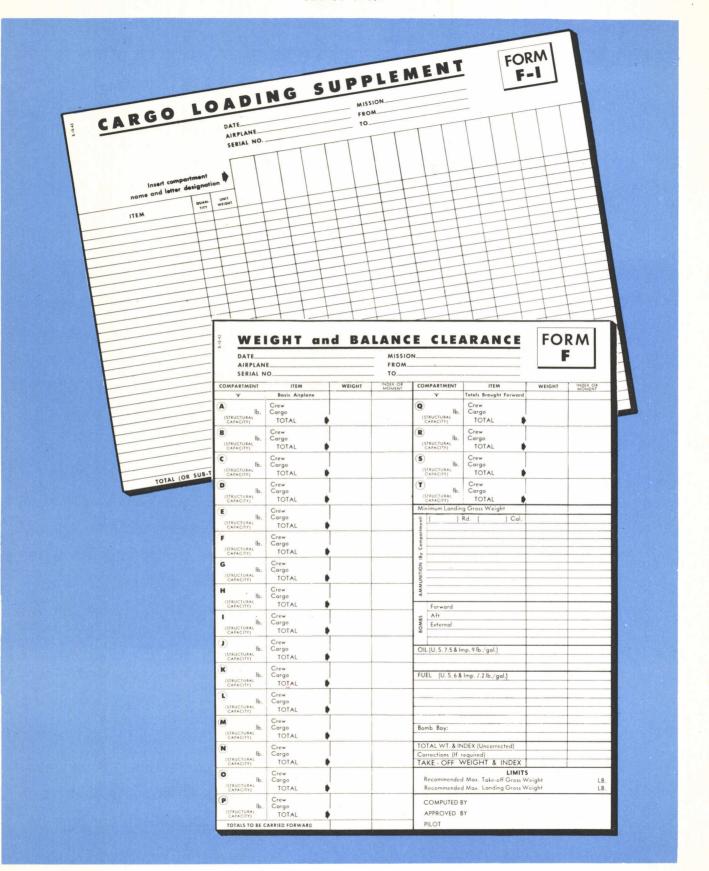
There are only two parts to the weight and balance problem. In the first place, one must have correct information as to the ever-essential beginning point - the basic weight and moment. Secondly, balance must be maintained within safe limits with the addition of load. The first part is controlled by three charts, A, B, and C, which are contained within the Handbook proper. The second part is performed on the balance computer or by means of loading graphs for the particular airplane and is then tabulated on a clearance form, occasionally including a supplement.

CHART A - Basic Weight Check List is a list of all items of fixed operating equipment that may at some time be installed in the aircraft in a definite location. It gives the weight and moment of the individual item for use in making changes in the basic airplane. When check marks are entered in the columns, it serves as a list of equipment included in basic weight and moment.

Charts

CHART B - Record of Structural Changes is provided to preserve a record of the modifications and changes in weight not indicated by definite items on chart A.

CHART C - The Log (Basic Weight and Balance Record) provides a standard work sheet upon which to enter the changes in the basic weight and thus maintain a record of the current status of the basic airplane.



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Detailed instructions for filling in each of the charts mentioned will be found printed on the page preceding the first sheet of each set.

Charts A, B, and C should be checked and brought up to date as follows:

- a. When the airplane is received at a new base.
- b. When modifications or structural changes are made.
- c. When the airplane has a major overhaul or engine change.
- d. When changes in equipment are made for a different type of operation or mission.
- e. When a pilot reports tail or nose heaviness in flight.
- f. When it is suspected that the forms are not up to date.
- g. When the airplane is reweighed.

To use a balance computer or loading graph satisfactorily, the total of variable load in each compartment must be known and tabulated. This may be done in detail on Form F-1 and the compartment totals then entered on Form F.

Form F is the summary of the actual disposition of load in the aircraft and records the balance status step by step. It is necessary to accomplish Form F prior to flight whenever an airplane is loaded in a manner for which no previous tabulation is available.

Form F-1 is a standard means for the ground crew to list in detail the items actually loaded in each compartment so that the pilot or weight and balance officer will have figures for checking the compartment totals. It may be used also as a form on which to list equipment requirements to aid loading crews in laying plans for the movement of groups of similar aircraft.

Commanding officers will prescribe the disposition of Forms F and F-1. However, it is recommended that one copy of each form completed for the current basic weight remain in the Handbook with that airplane. This will be an aid to personnel responsible for later loadings.

Form F is supplied as an expendable pad which can be replaced from stock when exhausted. These pads are loose leaf and have provisions for making duplicate copies. All original sheets are perforated along the binding edge and may be removed to serve as a certificate of proper balance, carrying the signature of responsibility. There will be found attached to the Form F pad a supply of Forms F-1 for use as needed.

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ACTUAL WEIGHING OF AIRPLANE

The airplane must be weighed in a closed hangar, in the following manner:

Thoroughly clean the airplane inside and out. Check the airplane equipment against chart A and correct the chart as necessary so as to itemize accurately all items of fixed operating equipment that will be included in the basic weight to be determined by the weighing. See that the date at the top of the CHECK column corresponds with the date entered on the weighing form and final entry posted in the log, chart C.

Bombs, ammunition, cargo, crew members, and equipment not having a fixed location are not to be listed as a part of chart A and are not to be in the airplane when weighed. Reservoirs for drinking and washing water, hydraulic, anti-icer, and cooling fluids, etc., should be filled to capacity prior to weighing. Engine oil and fuel (except trapped) are not items of basic weight. Fuel and oil tanks should be drained using only tank drains, with the airplane in its normal ground attitude.

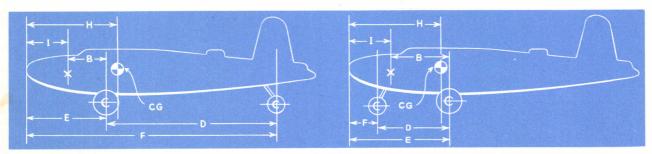
After the airplane is prepared for weighing as stated above, place calibrated scales of a suitable capacity under each wheel. Care must be exercised when placing a heavy airplane upon the platforms of scales because an abrupt application of the airplane's weight may seriously disturb the calibration of the scales and cause inaccuracy. Brakes shall be released at all times while the airplane is on the scales.

Level the airplane longitudinally and also laterally if possible. Use the regular airplane leveling lugs and a spirit level.

Enter the scale readings on the weighing form provided. Take measurements and compute the new basic weight and moment by completing the weighing forms.

Enter the new basic weight and moment in the log, chart C. All subsequent airplane loadings will be based on these figures.

FOR TAIL WHEEL AIRCRAFT • FOR NOSE WHEEL AIRCRAFT



DIAGRAMS FOR MEASURING VARIOUS TYPES OF AIRPLANES TO DETERMINE ARM OF SUPPORT POINTS

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AIRPLANE WEIGHING FORM

DATE WEIGHED		MODEL		SERIAL No	
PLACE WEIGHED		WE	IGHING OFFIC	CER	
WHEEL	SCALE READING	TARE	NET WEIGHT	ARM	MOMENT
LEFT MAIN			(4)		
RIGHT MAIN					
SUB-TOTAL (Both Main)				E	
NOSE OR TAIL				F	
TOTAL (As Weighed)	ř.			Н	

INSTRUCTIONS

- 1. Enter scale readings in first column.
- Subtract tare, if any, from scale reading to obtain net weight.
- 3. Determine the arms, E and F.
- 4. Multiply the sub-total net weight of main wheels, and the net weight of nose or tail wheel, by their respective arms (dimensions E and F) to obtain their moments.
- Add net weights and moments of the main wheels and nose or tail wheel.
- 6. Divide the total moment by the total net weight to obtain the cg position in inches from the reference datum line (H).

MEASUREMENTS

- B. Distance from the jig point or frame to the center line of the main wheels. Obtained by measurements.
- Distance from reference datum line to some accessible exterior jig point or frame of the airplane from which a plumb bob can be dropped to the ground. Obtain from diagram on balance computer or from Chart E.
- E. Distance from reference datum line to center line of main wheels.

$$E = B + 1$$

- D. Wheel base. Obtain by measurement.
- F. Distance from reference datum line to center line of nose or tail wheel.

F = E - D (nose wheel airplane)

F = E + D (tail wheel airplane)

	DESCRIPTION	NET WEIGHT	ARM	MOMENT	① INDEX
*	TOTAL (As Weighed)				
**	OIL IN AIRPLANE	_			
**	Total of Items Weighed but Not Part of Basic Weight	_			
***	Total of Basic Items Not in Airplane when Weighed	+		+ .	
	BASIC AIRPLANE (Post to Chart C)				

*Post from upper chart to lower chart.

**Subtract weight and moment in accordance with actual weighing instructions in the text.

***Be absolutely sure these items are subsequently installed and checked off in chart A as actually being in the airplane.

¹Applicable to the load adjusting computer.

AIRPLANE WEIGHING FORM

	AIRPLA	HAE AAEL	GHING	FORM	
DATE WEIGHED					
PLACE WEIGHED		w	EIGHING OFFI	CER	
WHEEL	SCALE READING	TARE	NET WEIGHT	ARM	MOMENT
LEFT MAIN					
RIGHT MAIN					
SUB-TOTAL (Both Main)				E	
NOSE OR TAIL				F	
TOTAL (As Weighed)			,	Н	

INSTRUCTIONS

- 1. Enter scale readings in first column.
- 2. Subtract tare, if any, from scale reading to obtain net weight.
- 3. Determine the arms, E and F.
- Multiply the sub-total net weight of main wheels, and the net weight of nose or tail wheel, by their respective arms (dimensions E and F) to obtain their moments.
- 5. Add net weights and moments of the main wheels and nose or tail wheel.
- 6. Divide the total moment by the total net weight to obtain the cg position in inches from the reference datum line (H).

MEASUREMENTS

- B. Distance from the jig point or frame to the center line of the main wheels. Obtained by measurements.
- Distance from reference datum line to some accessible exterior jig point or frame of the airplane from which a plumb bob can be dropped to the ground. Obtain from diagram on balance computer or from Chart E.
- E. Distance from reference datum line to center line of main wheels.

$$E = B + 1$$

- D. Wheel base. Obtain by measurement.
- F. Distance from reference datum line to center line of nose or tail wheel.

F = E - D (nose wheel airplane)

F = E + D (tail wheel airplane)

	DESCRIPTION	NET WEIGHT	ARM	MOMENT	① INDEX
*	TOTAL (As Weighed)				
**	OIL IN AIRPLANE	_			
**	Total of Items Weighed but Not Part of Basic Weight			_	
***	Total of Basic Items Not in Airplane when Weighed	+		+	
	BASIC AIRPLANE (Post to Chart C)				

*Post from upper chart to lower chart.

**Subtract weight and moment in accordance with actual weighing instructions in the text.

***Be absolutely sure these items are subsequently installed and checked off in chart A as actually being in the airplane.

DApplicable to the load adjusting computer.

|--|

AIRPLANE WEIGHING FORM

		SERIAL No				
WHEEL	SCALE READING	TARE	NET WEIGHT	ARM	MOMENT	
LEFT MAIN			11 9		>>	
RIGHT MAIN					>><	
SUB-TOTAL (Both Main)				E		
NOSE OR TAIL				F		
TOTAL (As Weighed)		,		н		

INSTRUCTIONS

- 1. Enter scale readings in first column.
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- 6. Divide the total moment by the total net weight to obtain the cg position in inches from the reference datum line (H).

MEASUREMENTS

- B. Distance from the jig point or frame to the center line of the main wheels. Obtained by measurements.
- Distance from reference datum line to some accessible exterior jig point or frame of the airplane from which a plumb bob can be dropped to the ground. Obtain from diagram on balance computer or from Chart E.
- E. Distance from reference datum line to center line of main wheels.

$$E = B + 1$$

- D. Wheel base. Obtain by measurement.
- F. Distance from reference datum line to center line of nose or tail wheel.

F = E - D (nose wheel airplane)

F = E + D (tail wheel airplane)

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	DESCRIPTION	NET WEIGHT	ARM	MOMENT	① INDEX
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***	Total of Basic Items Not in Airplane when Weighed	+		+	
	BASIC AIRPLANE (Post to Chart C)				

^{*}Post from upper chart to lower chart.

**Subtract weight and moment in accordance with actual weighing instructions in the text.

^{***}Be absolutely sure these items are subsequently installed and checked off in chart A as actually being in the airplane.

①Applicable to the load adjusting computer.

INSTRUCTIONS FOR USING CHART A

This chart is a check-off listfor all fixed operating equipment (machine guns, cameras, etc.), which (1) has a definite location in the airplane, (2) is, or at some time may be, in the airplane, and (3) is an alternate installation for standard equipment.

At the time of delivery of a new airplane, the manufacturer is to enter the above items on this form, in groups according to compartment location. The item number shall be prefixed with the compartment letter designation. For large airplanes a separate page shall be used for each compartment. This list should be as complete as possible, and must be kept up to date.

RESTRICTED

The weight, arm, and moment for each item may be listed for all items of equipment, including possible alternate positions. If a constant is used to simplify the moment, it should be inserted at the top of the moment column.

A check (v) in the column headed "IN AIRPLANE" indicates the presence of the item in the airplane on the date at the head of the column. Items should not be checked unless they are installed and items not checked are not included in the basic weight and balance tabulated on chart C for the corresponding date. Check marks should never be changed or added in a previously checked column. When a complete inven-

tory is taken at a later date, the next check column

is used.

When a listed item not previously in the airplane is installed, the weight and moment shown on chart A should be added to the last basic weight and moment on chart C.

If an unlisted item is installed in the airplane, write in its name or description under the proper compartment, together with the authorizing change order number if applicable and list its weight, arm and moment on chart A. Add its weight and moment to the last weight and moment on chart C. The arm may be determined with the aid of chart E in section 7.

When an item is removed from the airplane, subtract its weight and moment on chart C.

During a complete inventory, any change made in equipment since the previous inventory becomes obvious when the check marks on the first inventory are compared with the second. Refer to chart C and ascertain whether correct changes in the basic weight and moment have been made in the interval between inventories. If each change indicated by the difference of check marks has been made, place a check mark in the "LOG ENTRY" column. If the change has not been made, add the entry and then place a check mark in the log entry column.

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SECTION-4



INSTRUCTIONS FOR USING CHART B

This chart serves as an historical record of structural changes and the replacement of major items such as engines, propellers, cowling, tires, ordnance installations, self-sealing fuel cells, etc., not covered by chart A.

The manufacturer made no entries on this form unless modifications or changes were made after actually weighing and determining the basic weight and moment. Entries are to be made by a weight and balance officer or by an engineering officer at an overhaul or modification center as follows:

Column 1 - Enter date of change.

Column 2 - Enter sufficient description of change to identify it, including the authorizing change order number if applicable.

Column 3 - Enter net weight increase or decrease (+ or -).

Column 4 - Enter arm (distance from reference datum line to the cg of the change). See chart E.

Column 5 - Enter the moment increase or decrease (+ or -).

Transfer total weight and moment of each group of entries to chart C and make any necessary change on chart A.

This form may also be used to list minor changes which are not great enough to justify changing the basic weight and moment. When the total number of small changes becomes appreciable, it may be entered on chart C. This reduces the number of basic log entries without losing the accumulative effect of numerous small changes.

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RECORD OF STRUCTURAL CHANGES

HISTORY OF AIRPLANE CHANGES AND MODIFICATIONS AFFECTING WEIGHT AND BALANCE

CHART B

 $\mathbf{ARM} = \mathsf{Distance}, \ \mathsf{in} \ \mathsf{inches}, \ \mathsf{from} \ \mathsf{Reference} \ \mathsf{Datum} \ \mathsf{Line}$

AIRPLANE MODEL

 $\textbf{MOMENT} = \textbf{Weight} \times \textbf{Distance, in inches, from Reference Datum Line}$

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5-43

RECORD OF STRUCTURAL CHANGES

CHART **B**

HISTORY OF AIRPLANE CHANGES AND MODIFICATIONS AFFECTING WEIGHT AND BALANCE

AIRPLANE MODEL

ARM = Distance, in inches, from Reference Datum Line

MOMENT = Weight × Distance, in inches, from Reference Datum Line

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RECORD OF STRUCTURAL CHANGES

HISTORY OF AIRPLANE CHANGES AND MODIFICATIONS AFFECTING WEIGHT AND BALANCE

CHART

 $\mathbf{ARM} = \mathsf{Distance}$, in inches, from Reference Datum Line

AIRPLANE MODEL

f MOMENT = Weight imes Distance, in inches, from Reference Datum Line

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RECORD OF STRUCTURAL CHANGES

CHART **B**

HISTORY OF AIRPLANE CHANGES AND MODIFICATIONS AFFECTING WEIGHT AND BALANCE

AIRPLANE MODEL

ARM :		Distance,	in	inches,	from	Reference	Datum	Line
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 $\textbf{MOMENT} = \textbf{Weight} \times \textbf{Distance, in inches, from Reference Datum Line}$

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RECORD OF STRUCTURAL CHANGES

HISTORY OF AIRPLANE CHANGES AND MODIFICATIONS AFFECTING WEIGHT AND BALANCE

CHART B

 ${\bf ARM} = {\bf Distance, \ in \ inches, \ from \ Reference \ Datum \ Line}$ ${\bf MOMENT} = {\bf Weight} \times {\bf Distance, \ in \ inches, \ from \ Reference \ Datum \ Line}$

AIRPLANE MODEL

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SECTION 5

chart C is a permanent running record of the changes in an airplane's basic weight, moment and index. At all times the last weight, moment and index entry is considered the current weight and balance status of the basic airplane. The basic index for the balance computer can be determined by means of the formula shown on the computer and included in the instructions for the use of the computer.

At time of delivery of a new airplane, the manufacturer enters on this chart the basic weight, moment and index of the airplane. The itemized list of the equipment included is shown and checked on chart A in the delivery column.

The log entry date must be consistent with the date entered at the top of the check column on chart A and with the date on the airplane weighing forms.

Whenever equipment is added to or removed from the airplane, the item number, nomenclature, weight and moment should be obtained from chart A and entered in the appropriate columns on chart C. The necessary corrections should then be made to the progressive totals. In order to preserve a record of

the added basic equipment, unlisted equipment which is installed in the airplane should be tabulated on chart A, using the actual weight and measured arm of the items.

If the index of the airplane is changed as a result of changes in the fixed operating equipment or structural changes made in the airplane, the index on the data card of the balance computer's carrying case must be changed to agree.

Structural modifications or changes are to be recorded first on chart B and the net change in weight and moment added to or subtracted from the last previous total on chart C.

The effect of changes in equipment which have been transferred from chart A and the effect of structural modifications which have been transferred from chart B keep the log correct and up-to-date.

Any change or modification which is caused by a specific order should carry a reference to the order number which authorizes the change.

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SECTION-6



INSTRUCTIONS FOR USING FORM

- 1. Insert the necessary identifying information at the top of the form.
- 2. Enter basic airplane weight and index at top of the left-hand column. Obtain these figures from the balance computer case data card or from the last entry on chart C. In case the figures do not agree, chart C is to be considered correct.
- 3. Using the same compartment letter identification as shown on the back of the balance computer, enter the crew and cargo weights for each compartment in the "ITEM" column. Enter each compartment total to the weight column.
- 4. Enter the minimum landing gross weight (basic weight plus compartment loads). When paratroops are to be evacuated in flight, this landing gross weight will be reduced, and hence the cg position must be rechecked carefully.
- 5. List the ammunition by compartment, giving the caliber and number of rounds, and enter weight in the weight column.
- 6. List the number and size of bombs, torpedoes, etc., and enter the total weights in the weight column.
- 7. List the amount and weight of the oil and enter weight in the weight column.
- 8. List by tanks, the amount and weight of all fuel loaded. Group fuel tank nomenclature where possible. Enter the respective weights in the weight column.
- 9. Enter "Recommended Max. Take-off Gross Weight" and "Recommended Max. Landing Gross Weight." Obtain these figures from the table in chart E.
- 10. Add the weight column and determine the gross weight. Check this figure against the gross weight allowable, and make any necessary changes or additions.
- 11. By using the balance computer or loading graph, determine the loaded airplane's balance in accordance with instructions. When the Load Adjuster is used, record in the index column the progressive movement of the indicator after each step. Shift load if required, and make changes or additions to the entries as necessary.
- 12. Enter "Take-off Weight and Index."
- 13. Secure necessary approval and signatures at the bottom of Form F.

RESTRICTED

SECTION-7



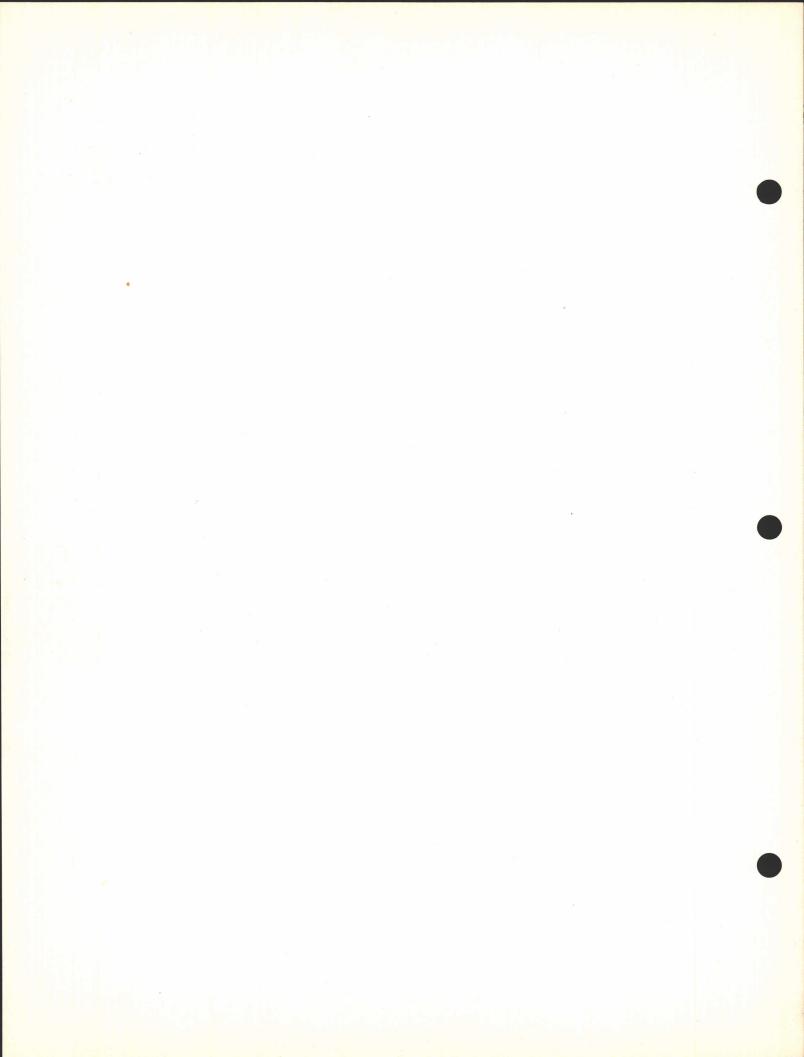
CHART E · LOADING GRAPHS

The loading graphs in this section are intended to provide information necessary to work a balance problem for the airplane to which this Handbook is applicable.

From the loading graphs or tables, weights and moments are obtained for all variable load items and are added arithmetically to the current basic weight and moment from chart C to obtain the gross weight and moment. The center of gravity of the loaded airplane is represented by the intersection of the gross weight and moment lines on the cg graph or by a moment figure if tables are used. If the airplane is loaded within the forward and aft cg limits, the intersection will fall between the limiting cg lines on the cg graph or if a table is used, the moment figure will fall numerically between the limiting moments. The effect on the cg of the expenditure in flight of items such as fuel and bombs may be checked by subtracting the weights and moments of such items from the take-off gross weight and moment and replotting on the cg graph or checking the new total with the table. This check should be made to determine whether or not the cg will remain within the limits during the entire flight.

If a balance computer is furnished with the airplane, it will not be necessary to use the loading graphs.

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HANDBOOK OF

WEIGHT and BALANCE DATA

INSTRUCTIONS FOR USING THE LOAD ADJUSTER

APPENDIX I



INSTRUCTIONS FOR USING THE LOAD ADJUSTER



The Load Adjuster consists of a base, a slide, a transparent indicator that moves across the face, a carrying case and a clip which is fastened in the airplane to provide stowage for the Load Adjuster and case. The device is merely a computer which simplifies the determination of an airplane's cg location under any given loading arrangement. The movement of the transparent indicator represents the actual shift of the cg as load conditions change.

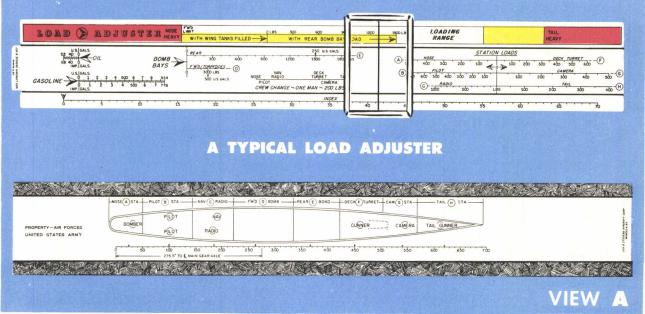
Each Load Adjuster is designed for a particular type or model of airplane. The scales, diagram, and information shown on its face are intended to give an operator all the essential information needed to work a balance problem for the airplane to which it applies.



The front face of the slide contains the working scales for fuel, oil, bombs, compartments that may carry loads, and for movements of crew. The fixed section above the slide shows the airplane's cg limits in color so as to be easily understood. The section below the slide has one scale, called an index scale, for location of the starting point for the balance calculation.

The front face only is essential for working out a balance problem. The remaining faces are utilized for pertinent data such as instructions, conversion scale for weight, ammunition weights, a plan view of the airplane showing compartmentation, location of equipment and measurements. The back of the slide carries scales for obtaining the basic index using the basic weight and moment taken from chart C.

Several points must be borne in mind. The balance limits shown in color are the guide to safe operation. Any loading where the indicator finally rests in the white section is considered safe, no matter how the fuel, bombs, or other expendable loads are used or dropped. The yellow section indicates the effect of expendable load on balance in flight. Thus, an initial loading in the white section will remain safe during flight.



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The following sample instructions will clarify and illustrate the use of a Load Adjuster.

For the purpose of this problem we will assume that the basic weight of the airplane is 23,860 pounds and that the basic index is 16.8. These figures are normally obtained from a card beneath a transparent window on the back of the load adjuster case. They can be obtained also from chart C, where they are the last figures shown in the weight and index columns.

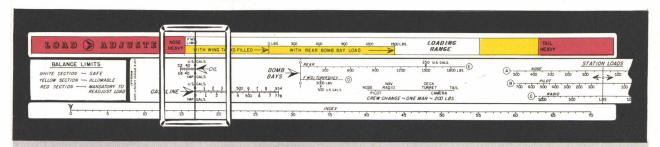
A typical load distribution and gross weight calculation is as follows:

(Not applicable to any particular airplane)

		The state of the s
Load Items	Subtotal	Total Weight
Basic airplane Oil (82 U.S. gallons) Fuel (900 U.S. gallons)		23,860 615 5,400
Bomb load: Forward bay (20 rd 100 lb each) Rear bay (15 rd 100 lb each)	2,400 1,800	4,200
Nose compartment: Bombardier Ammunition (300 rd .50 caliber)	200 100	300
Pilot's compartment: Pilot and copilot Miscel equipment (maps, etc.)	400 <u>50</u>	450
Radio compartment: Radio operator and navigator		400
Deck turret compartment: Gunner Ammunition (1000 rd .50 caliber)	200 330	530
Camera compartment: Special equipment		350
Tail compartment: Special equipment Ammunition (600 rd .50 caliber)	130 200	330
GROSS WEIGHT		36,435

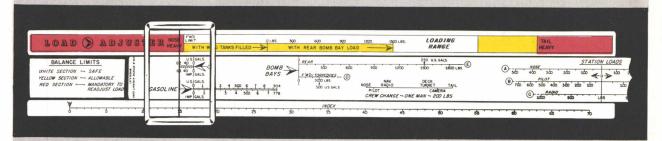
The gross weight of 36,435 pounds is within gross weight limits for this model airplane, so the loading is satisfactory for flight as far as weight alone is concerned.

To determine whether the balance is within safe limits, use the Load Adjuster that applies to the particular airplane being loaded and proceed as follows:



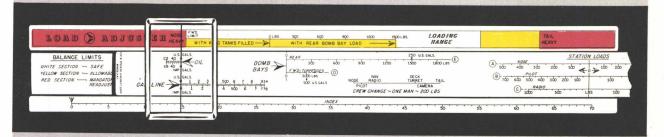
VIEW B

Set indicator on basic airplane index 16.8 and move slide to the zero mark on the "OIL scale, as shown in view B.

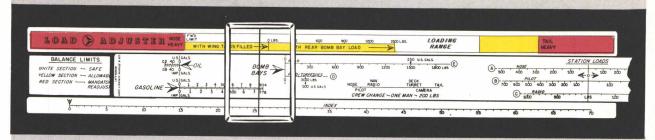


A VIEW C

Move indicator until the hairline is over 82 on the "U. S. GALS." scale. This adds the balance moment of 82 U. S. gallons of oil, as loaded in the airplane's oil tanks, and moves the index to 14.8, as illustrated in view C.

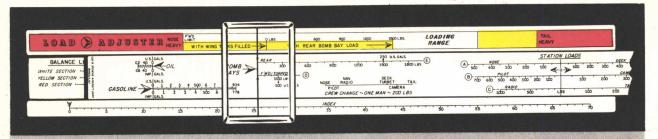


VIEW D Set slide to zero mark on "GASOLINE" scale, as illustrated in view D.



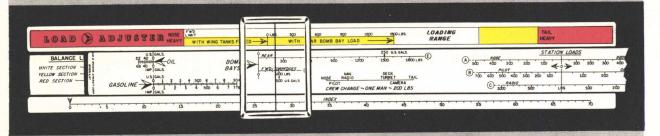
A VIEW E

Move indicator until the hairline is over 900 on the "U. S. GALS." scale. This adds the balance moment of 900 U. S. gallons of fuel, as loaded in the airplane's tanks, and moves the index to 25.5, as shown in view E.



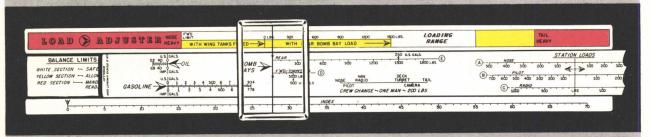
A VIEW F

Set slide to the zero mark on the "BOMB BAYS" scale, as illustrated in view F.

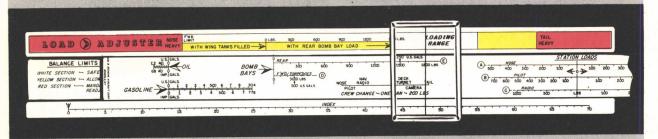


VIEW G

Move indicator until the hairline is over 2,400 on the "F'W'D/TORPEDOES" scale. This adds the balance moment of 2,400 pounds of bombs, as loaded in the forward bomb bay, and moves the index to 27.8, as illustrated in view G.

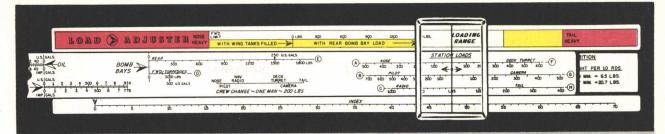


A VIEW H Set slide again to the zero mark on the bomb bay scale, as shown in view H.



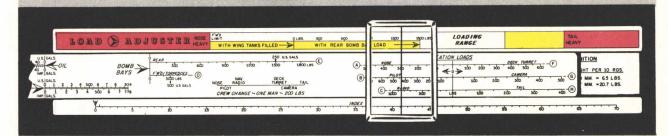
A VIEW I

Move indicator until the hairline is over 1,800 on the "REAR" bomb bay scale. This adds the balance moment of 1,800 pounds of bombs, as loaded in the rear bomb bay, and moves the index to 48.0 as shown in view I.



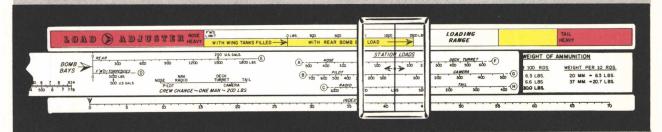
A VIEW J

Set slide to the zero mark on the "STATION LOADS" scale, as illustrated in view J.



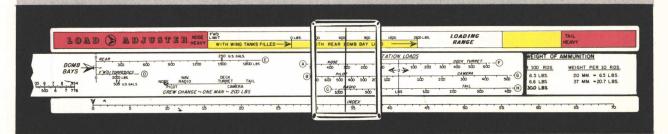
A VIEW K

Move indicator until the hairline is over 300 on the "NOSE" compartment scale. This adds the balance moment of the bombardier and ammunition in the nose compartment and moves the index to 41.1, as shown in view K.



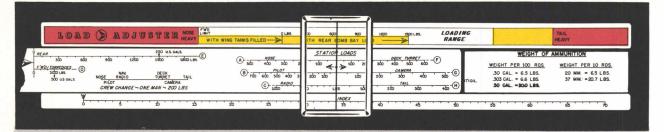
A VIEW L

Set slide to the compartment zero line, as shown in view L.



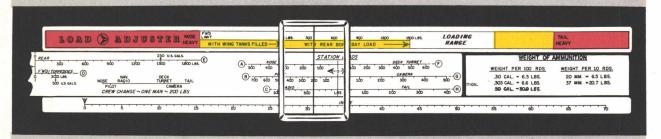
VIEW M

Move indicator until the hairline is over 450 on the "PILOT" scale. This adds the balance moment of the two pilots and 50 pounds of miscellaneous equipment and moves the index to 34.0, as illustrated in view M.



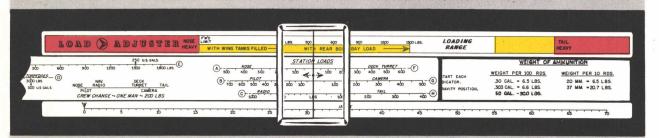
A VIEW N

Set slide to the compartment zero line, as shown in view N.



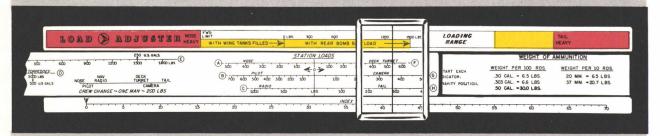
VIEW O

Move indicator until the hairline is over 400 on the "RADIO" scale. This adds the balance moment of the radio operator and the navigator and moves the index to 30.7, as shown in view O.



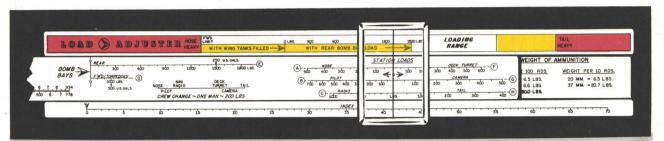
A VIEW P

Set slide to the compartment zero line, as shown in view P.



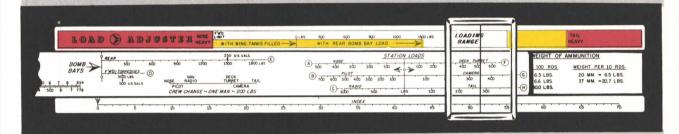
VIEW Q

Move indicator until the hairline is over 530 on the "DECK TURRET" scale. This adds the balance moment of a gunner and 1,000 rounds of .50 caliber ammunition and moves the index to 41.2, as illustrated in view Q.



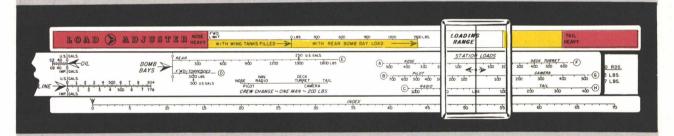
A VIEW R

Set slide to the compartment zero line, as shown in view R.



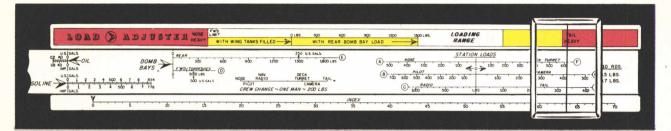
A VIEW S

Move indicator until the hairline is over 350 on the "CAMERA" scale. This adds the balance moment of 350 pounds of special equipment loaded in the camera compartment and moves the index to 51.4, as illustrated in view S.



A VIEW T

Set slide to the compartment zero line, as shown in view T.

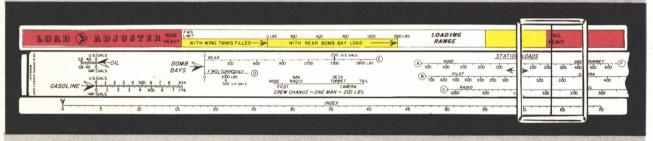


A VIEW U

Move indicator until the hairline is over 330 on the "TAIL" scale. This adds the balance moment of 130 pounds of special equipment and 600 rounds of .50 caliber ammunition, as loaded in the tail of the airplane, and completes the calculation of the balance moments of all items as initially loaded in the airplane. It has moved the airplane index to 63.6, as shown in view U.

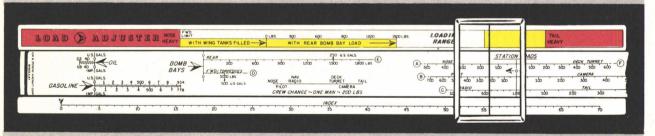
Adding the weights of all items loaded in the airplane (for this sample problem only) shows the gross load of the airplane within allowable limits, and, as far as gross weight alone is concerned, the airplane is satisfactory for flight. However, the indicator hairline is located in the red area of the loading range scale, which means that it is mandatory to shift some of the load before take-off.

This "out-of-balance" condition may be corrected by shifting a member of the crew, or some of the load, from an aft to a forward position in the airplane, the amount of shift required being predetermined by a trial shift of load on the Load Adjuster. In this sample case, shifting 150 pounds of cargo from the camera compartment into the nose behind the navigator's seat and 125 pounds from the camera compartment into the pilot's compartment behind the pilot's seat, will bring the airplane balance within the most desirable center of gravity limits. This is determined in the following manner:



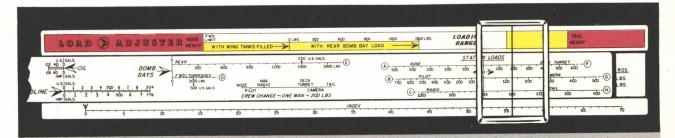
A VIEW

With the indicator hairline remaining on the last index setting (63.6), move the slide until 150 on the "CAMERA" scale is under the hairline, as shown in view V.



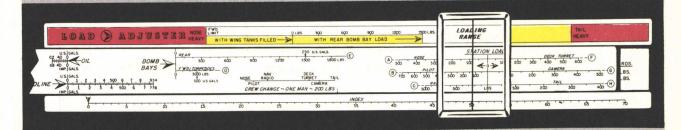
A VIEW W

Move indicator until the hairline is over 150 on the "NOSE" scale. This changes the balance moment of 150 pounds of cargo from the camera compartment to the nose compartment and moves the airplane index to 55.7, as shown in view W.



A VIEW X

Move slide until 125 on the "CAMERA" scale is under the hairline, as shown in view X.



VIEW Y

Move indicator until the hairline is over 125 on the "PILOT" scale. This changes the balance moment of 125 pounds of cargo from the camera compartment to the pilot's compartment and moves the airplane index to 50.2, as shown in view Y. The airplane is now within safe cg limits.

Although loading in the yellow section of the loading range scale is satisfactory for flight and does not necessitate shifting of load before take-off, best performance and range may be obtained by loading the airplane so that the hairline will fall as near the center of the white area of the loading range scale as possible. Operation with the hairline in the yellow section is subject to any limitation noted therein.

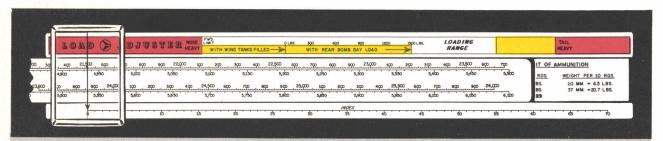
Emergency loadings that fall outside the load adjuster loading range should be checked against the applicable grid by a weight and balance officer.

Never shift or dispose of any load without predetermining (by means of the Load Adjuster) that the balance will remain within allowable limits after the change is made.

The process of determining basic index from actual weighing figures or from the weights and moments given in chart C can be accomplished in two ways:

- 1. By using the formula given on the inside frame of the Load Adjuster, or
- 2. By using the index determination scales on the back of the load adjuster slide. The second method simplifies the problem considerably, as all figuring is eliminated. The operation is as follows:

EXAMPLE A: Basic weight—23,860 lb. Basic moment—5,702,751 inch-pounds



VIEW Z

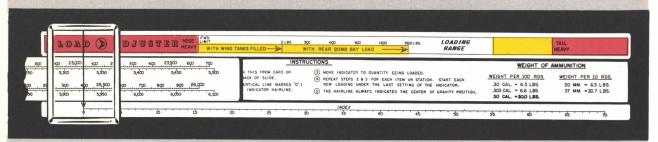
Use the back side of the Load Adjuster slide. Move the indicator until the hairline is over the arrow at "O" index. Move slide until basic weight, 23,860, is under hairline as shown in view Z.



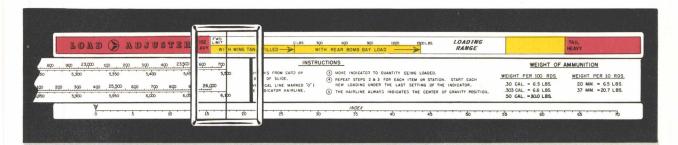
VIEW AA Move indicator until hairline is over 5,703 on the moment/1,000 scale. Read the index (16.8) on the bottom index scale of the load adjuster frame under the hairline.

> The possible ranges in basic weight and moment/1,000 make it necessary to use scales approximately two times the length of the computer. To fit the back of the slide, they have been divided into two strips. If the basic weight and moment/1,000 do not both occur on one scale, it is necessary to use the two scales, as follows:

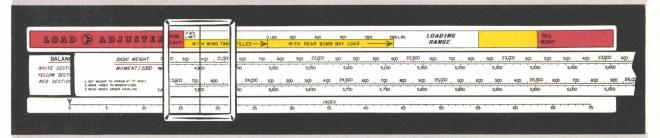
> > EXAMPLE B: Basic weight—23,040 lb. Basic moment—5,569,725 inch-pounds



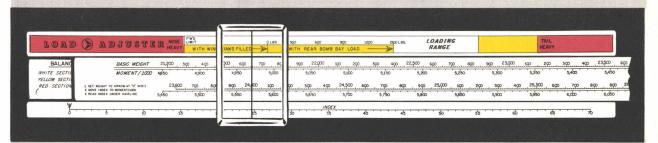
VIEW AB Move indicator until hairline is over the arrow at "0" index. Move slide until basic weight (23,040 lb.) is under the hairline, as shown in view AB.



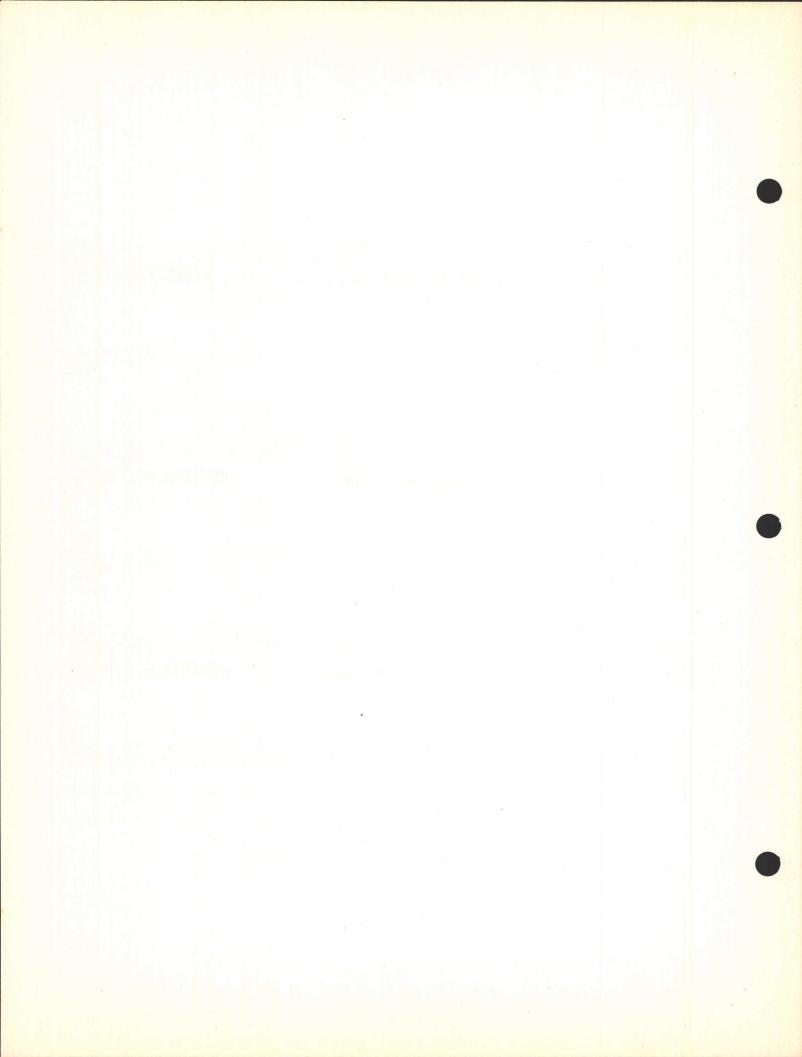
A VIEW AC Move indicator until hairline is over 5,500 on the right-hand end of the top scale, as shown in view AC.

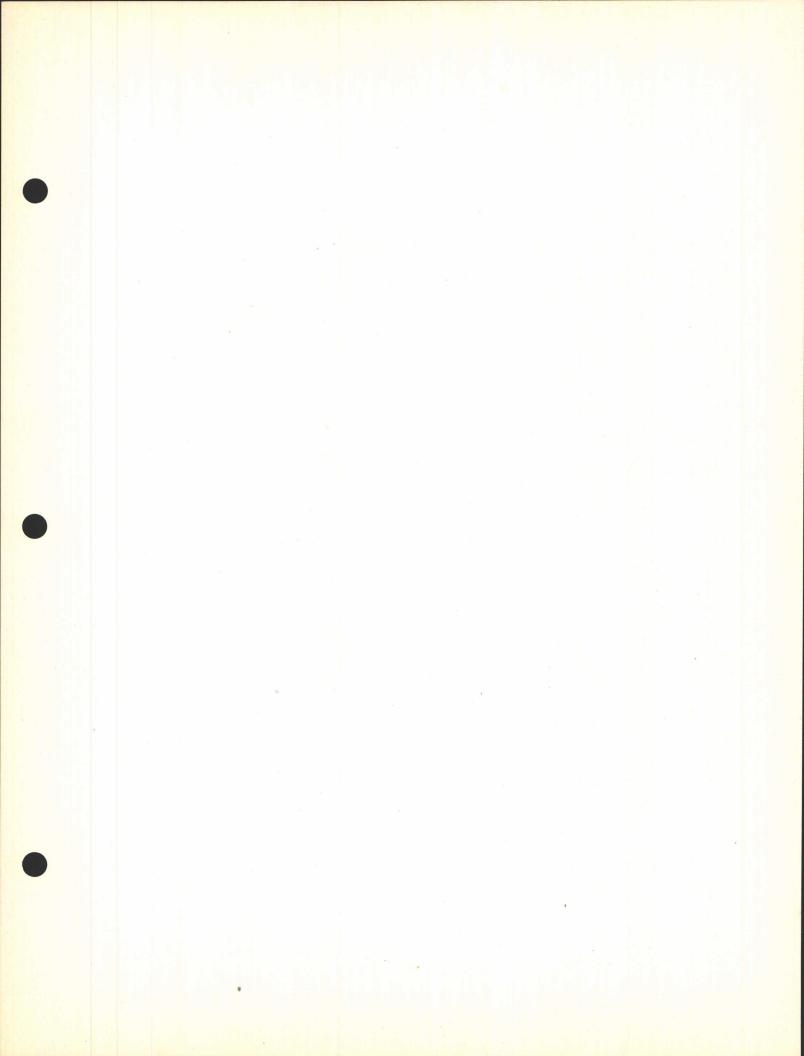


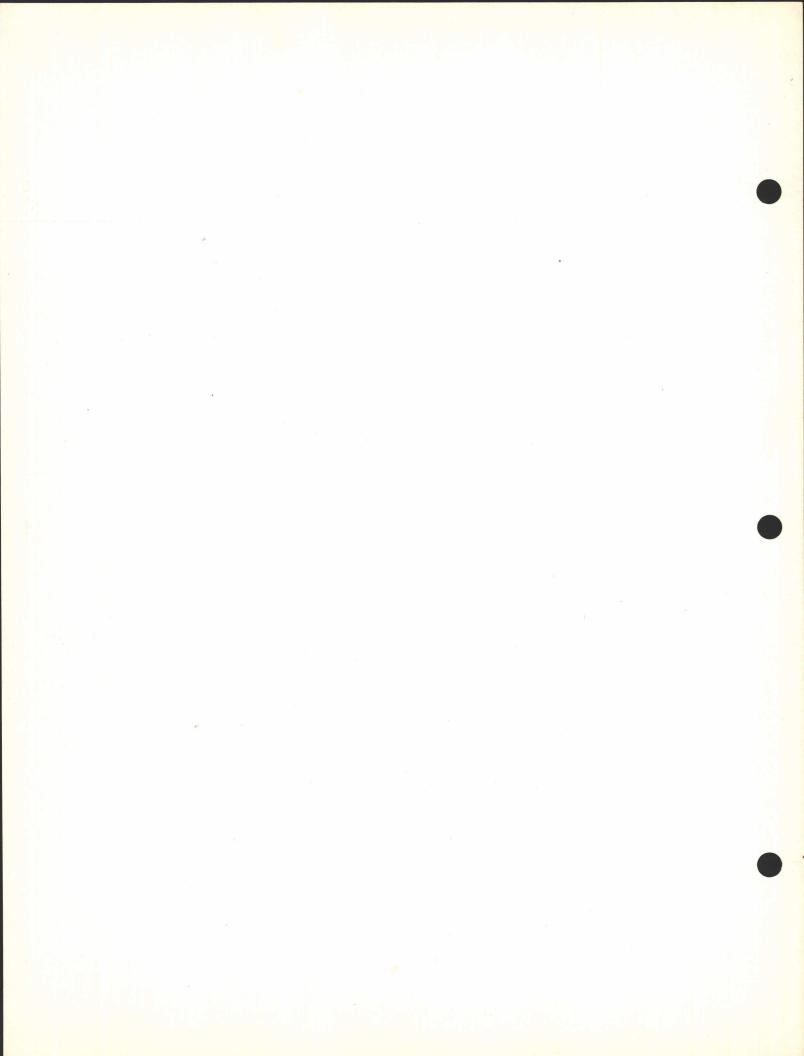
A VIEW AD Move slide until 5,500 on the bottom moment/1,000 scale is under the hairline, as illustrated in view AD.



VIEW AE Move indicator until hairline is over 5,570, as shown in view AE. Read the index (24.5) under the hairline at the bottom of the frame.





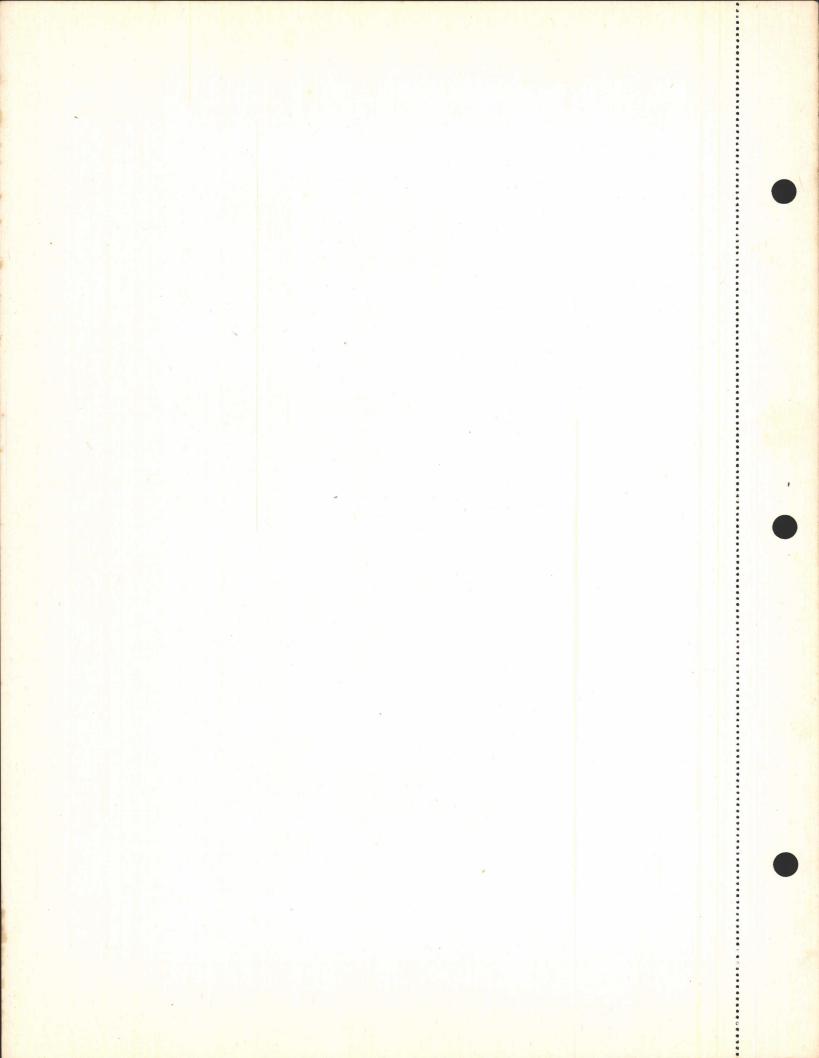


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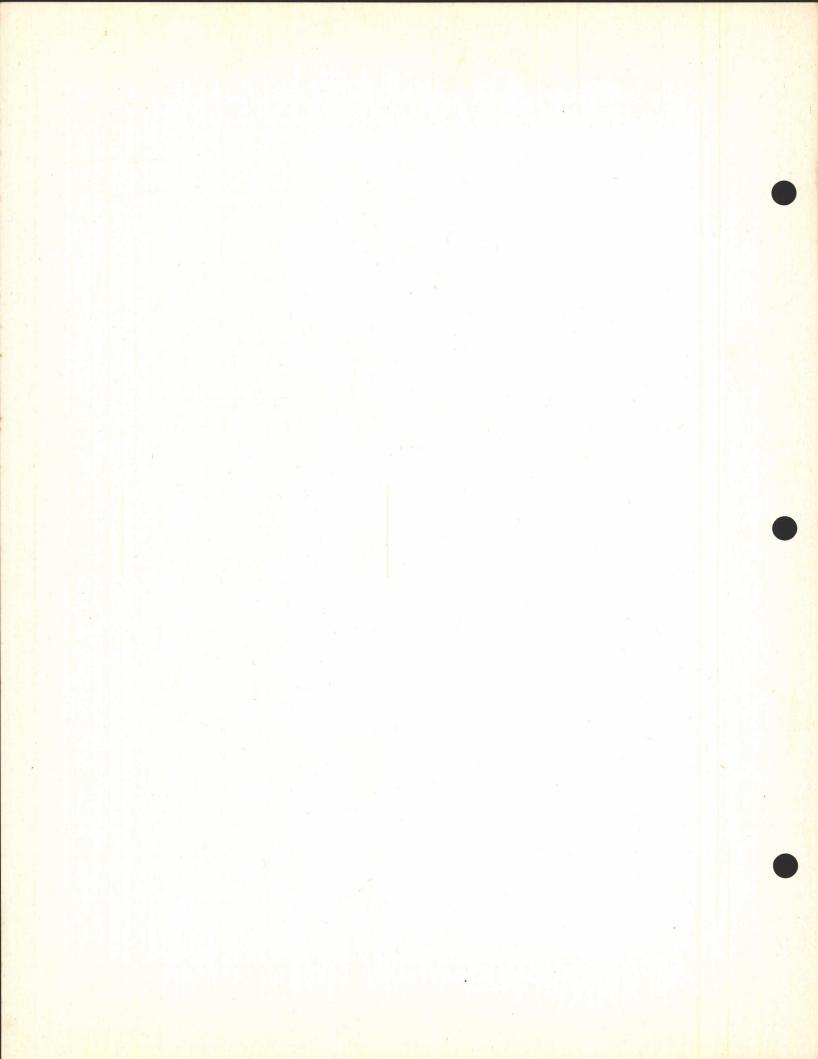


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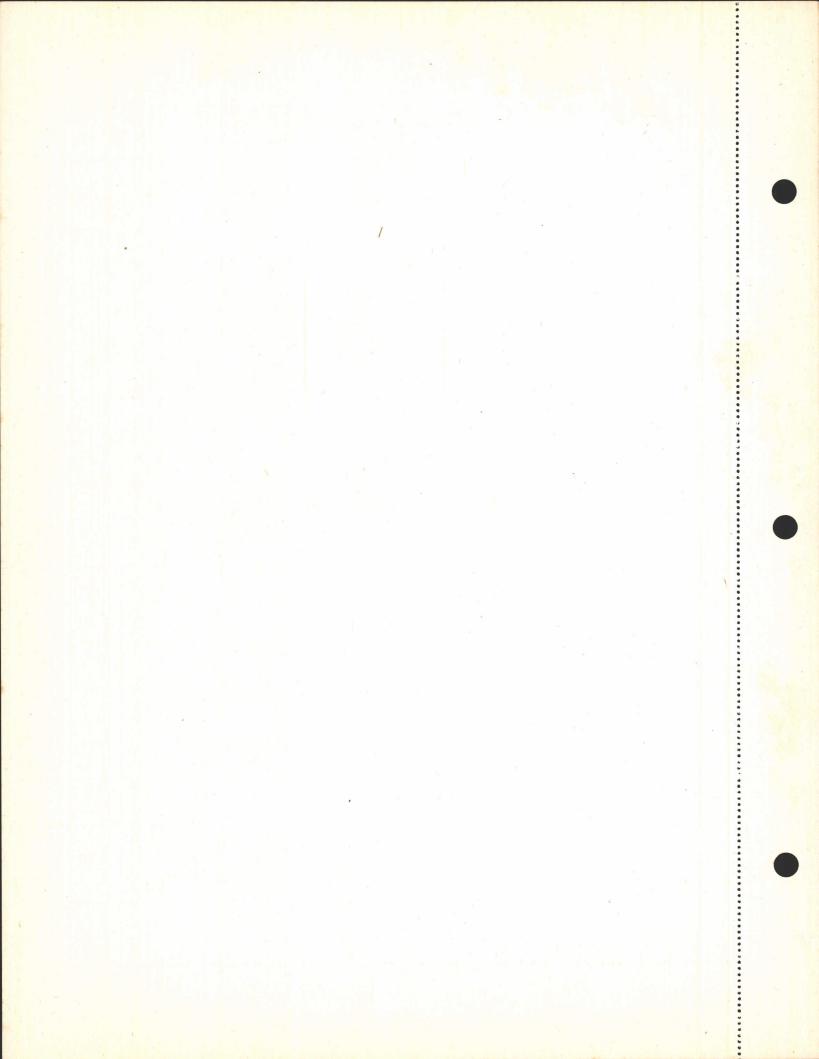
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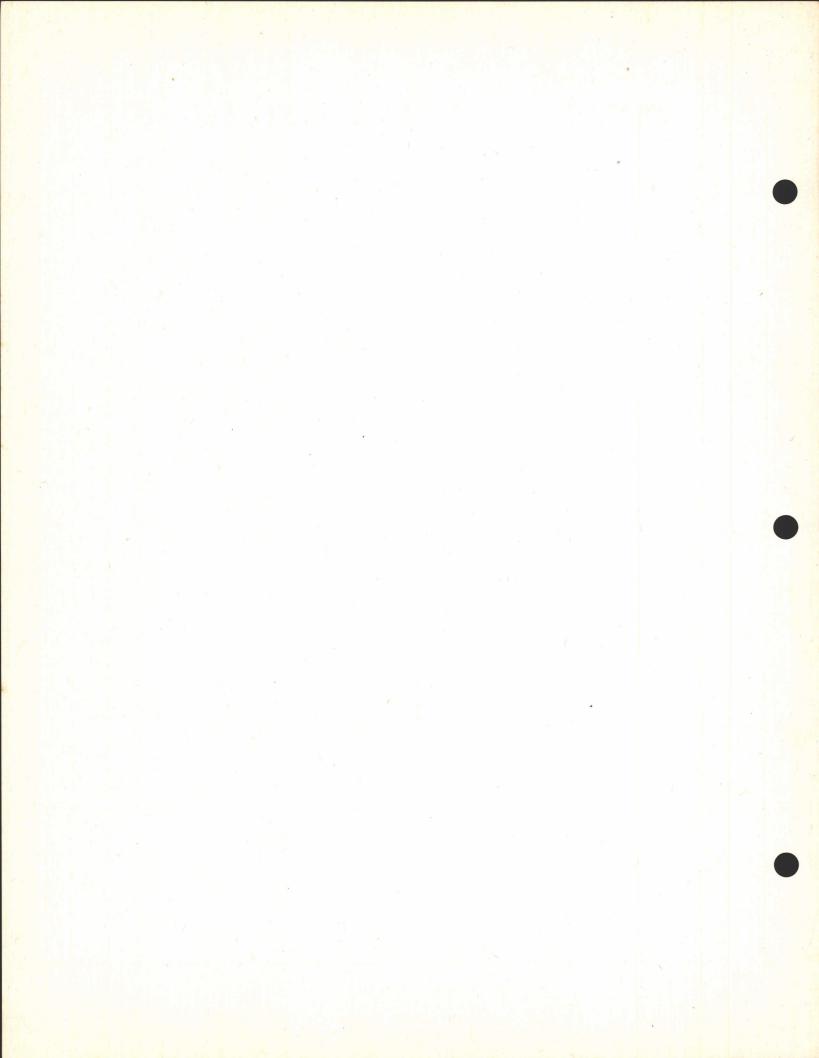


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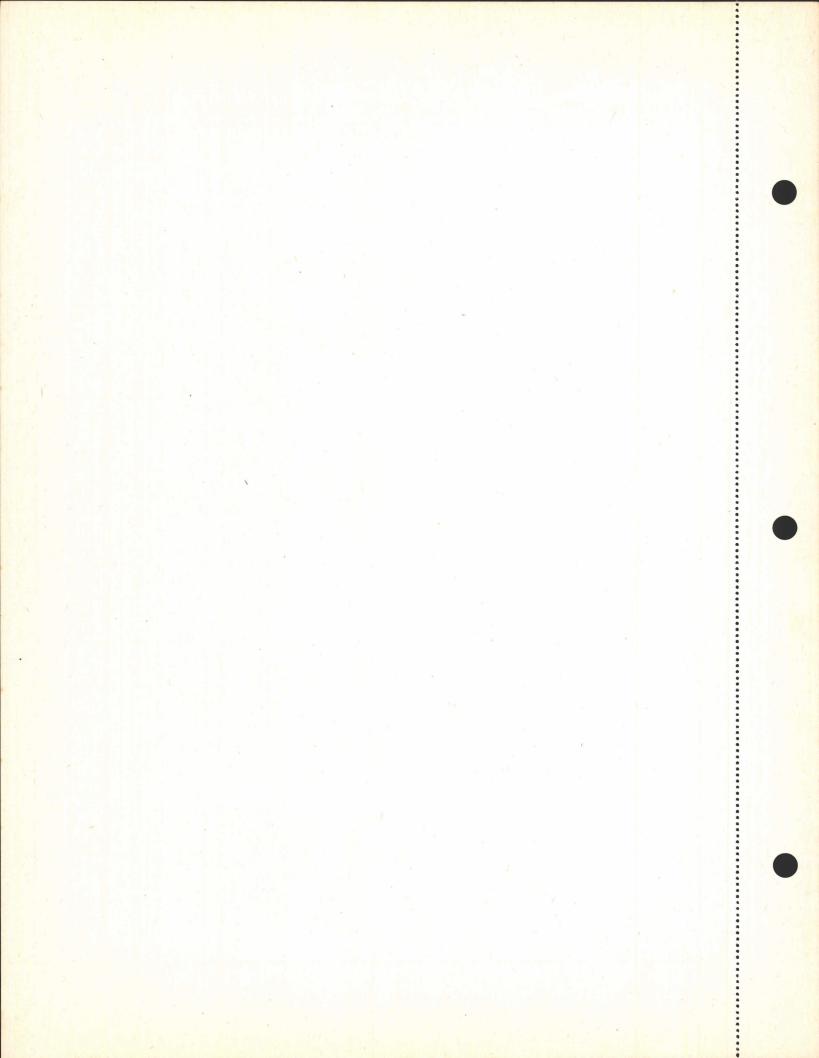
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LIMITS

LB.

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Recommended Max. Take-off Gross Weight

Recommended Max. Landing Gross Weight

COMPUTED BY

APPROVED BY

PILOT

Crew Cargo

Crew Cargo

TOTALS TO BE CARRIED FORWARD

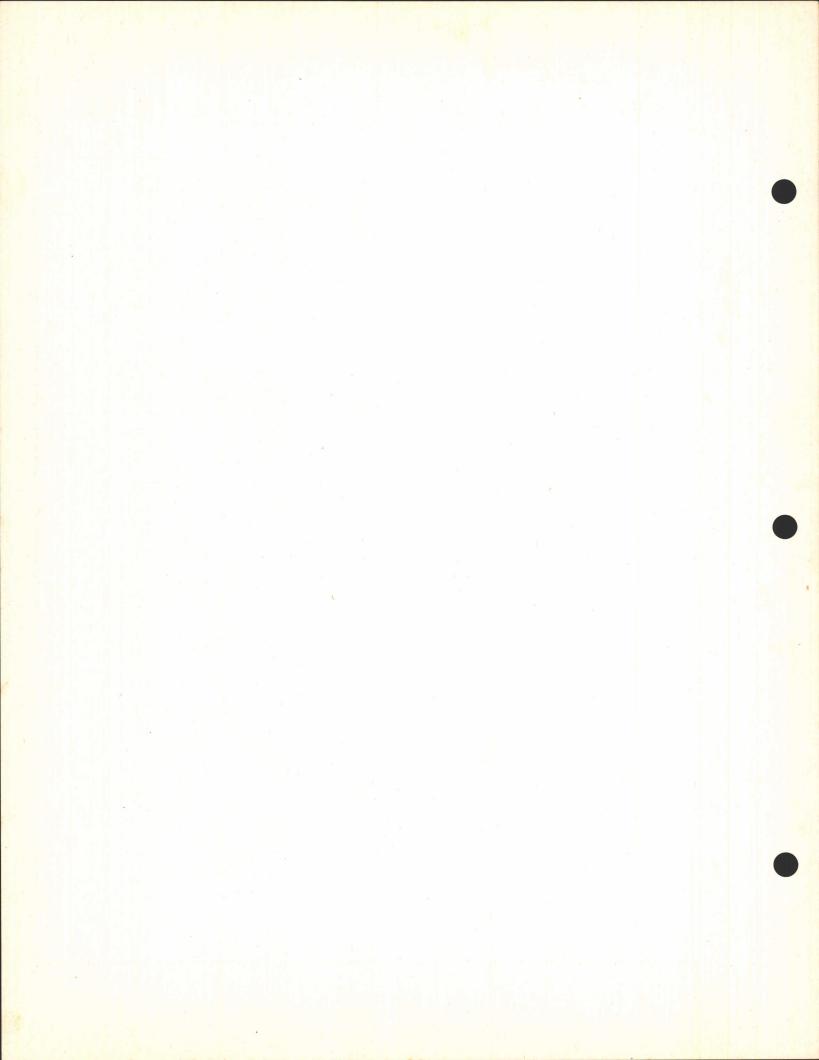
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Corrections (If required)
TAKE - OFF WEIGHT & INDEX

COMPUTED BY

APPROVED BY

PILOT_

Recommended Max. Take-off Gross Weight

Recommended Max. Landing Gross Weight

LIMITS

LB.

LB.

Cargo TOTAL

Crew

Crew

Cargo

TOTALS TO BE CARRIED FORWARD

TOTAL

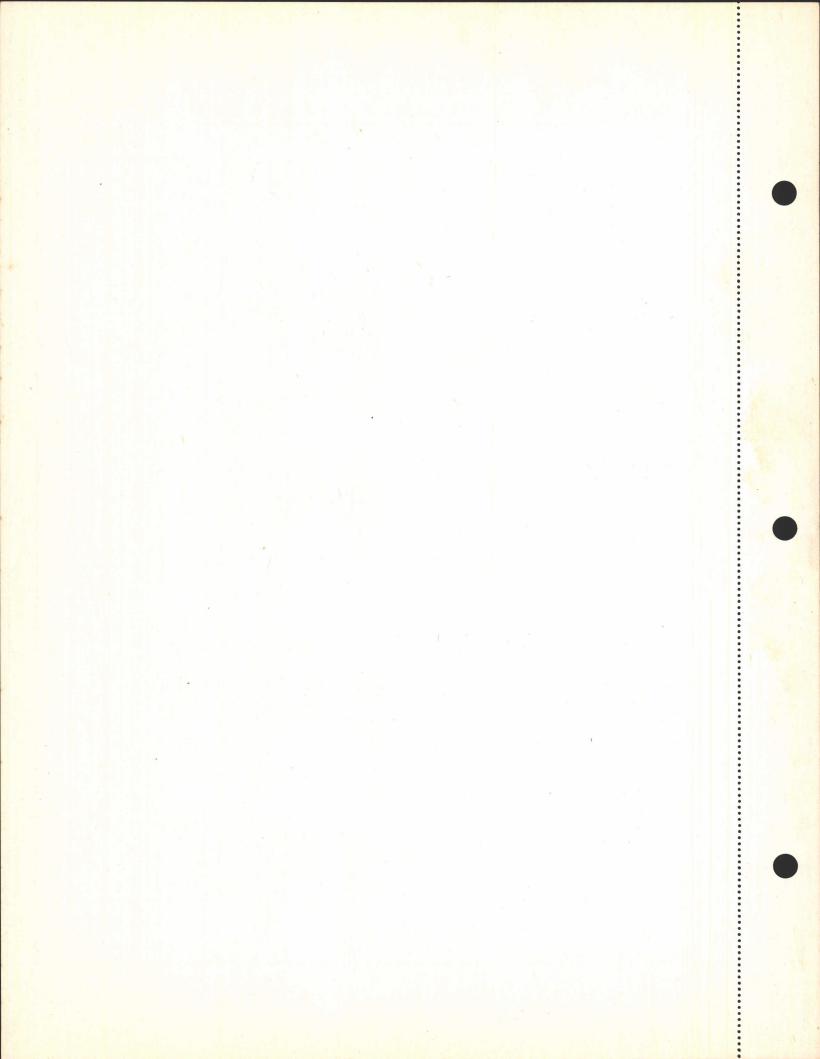
Cargo TOTAL

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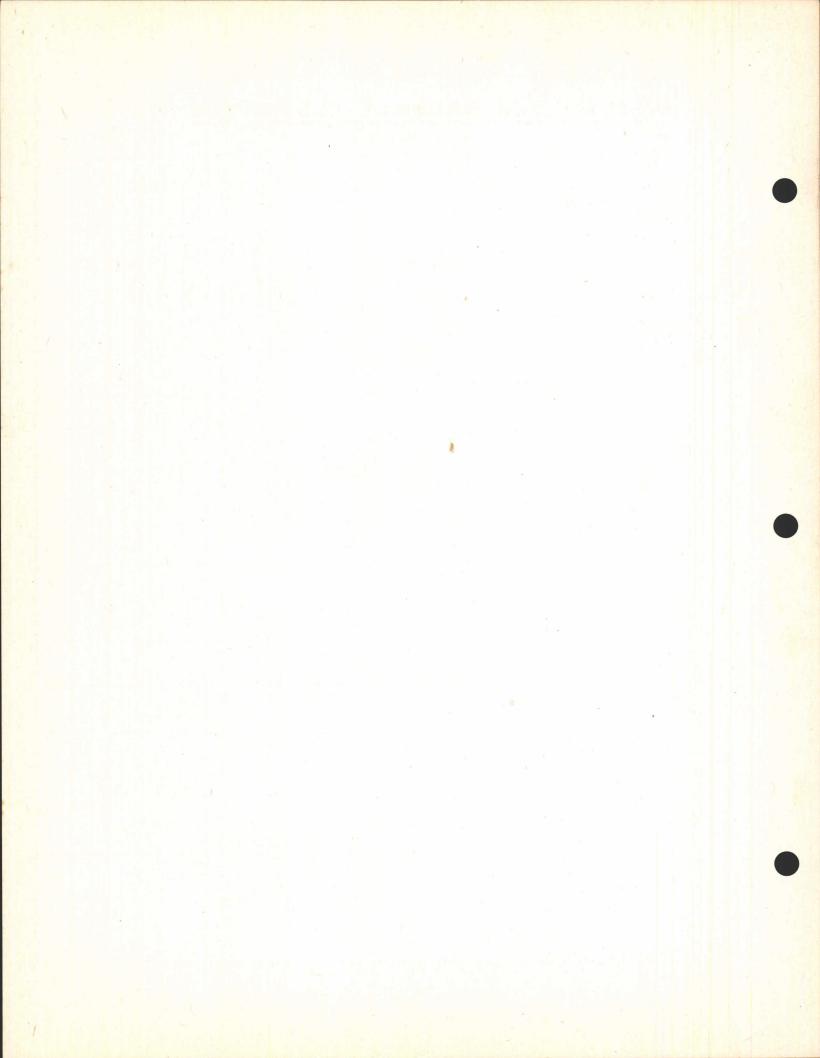
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Crew Cargo

TOTALS TO BE CARRIED FORWARD

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COMPUTED BY

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PILOT_

Recommended Max. Take-off Gross Weight Recommended Max. Landing Gross Weight

LIMITS

LB.

LB.

TOTAL

TOTAL

Crew

Crew

TOTALS TO BE CARRIED FORWARD

Cargo

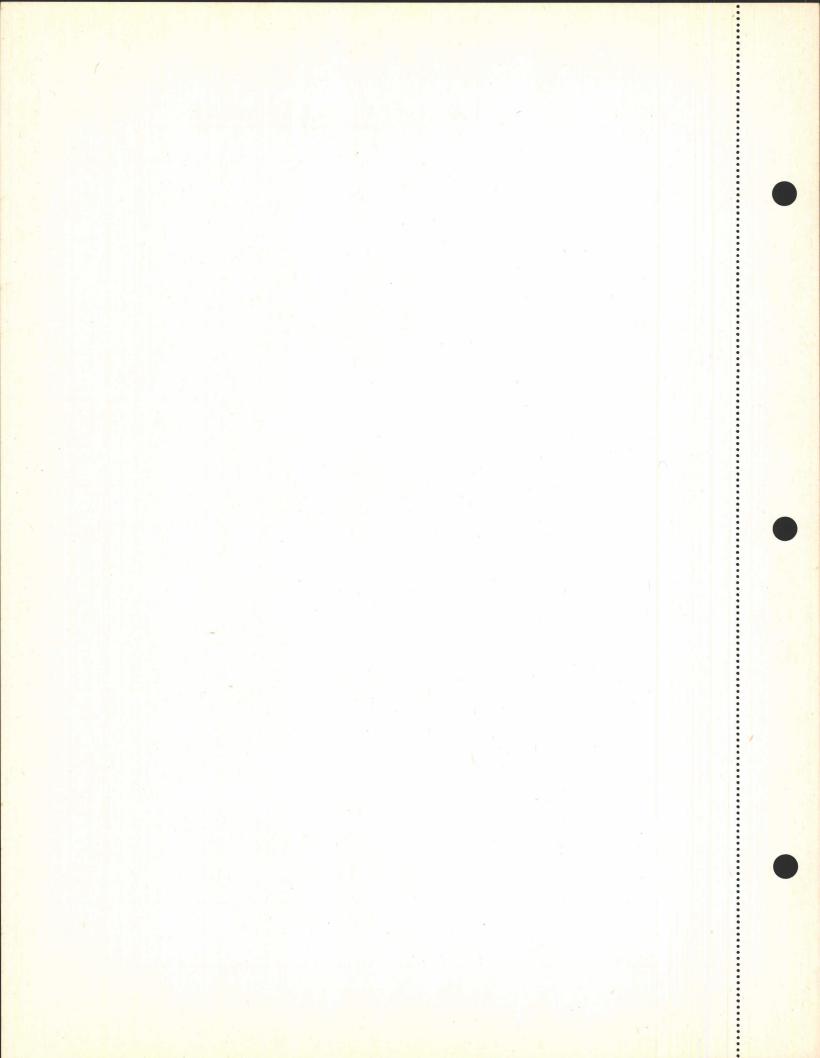
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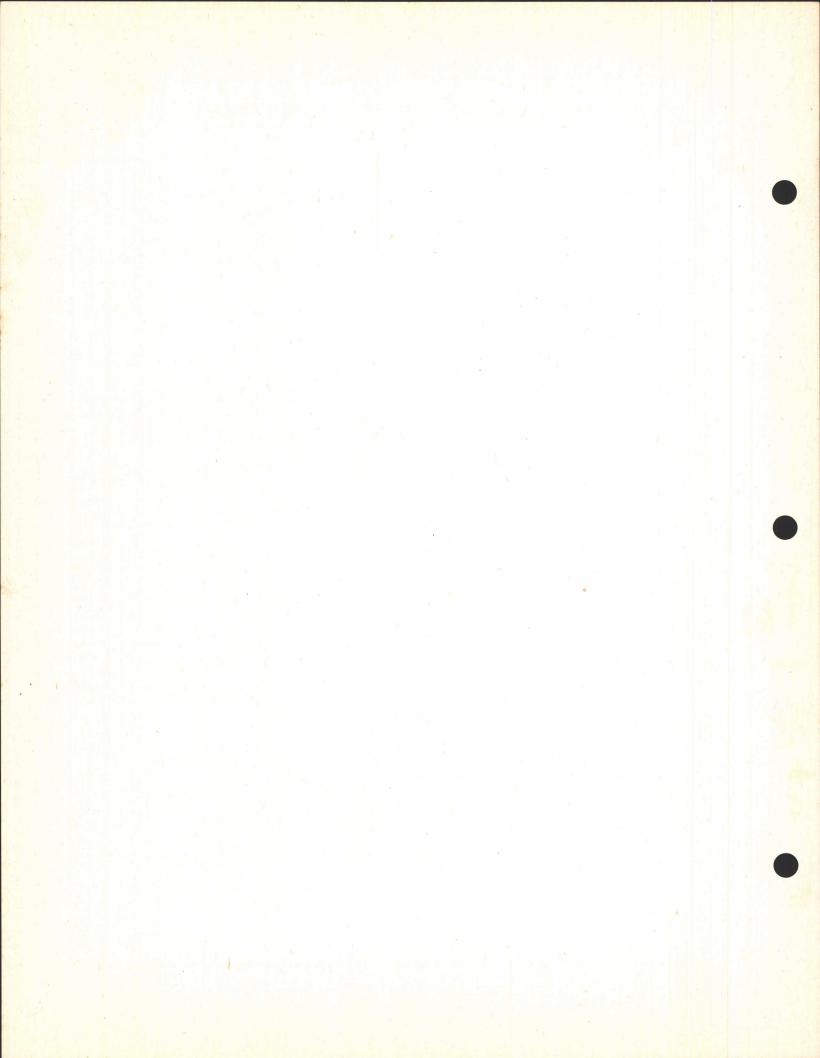


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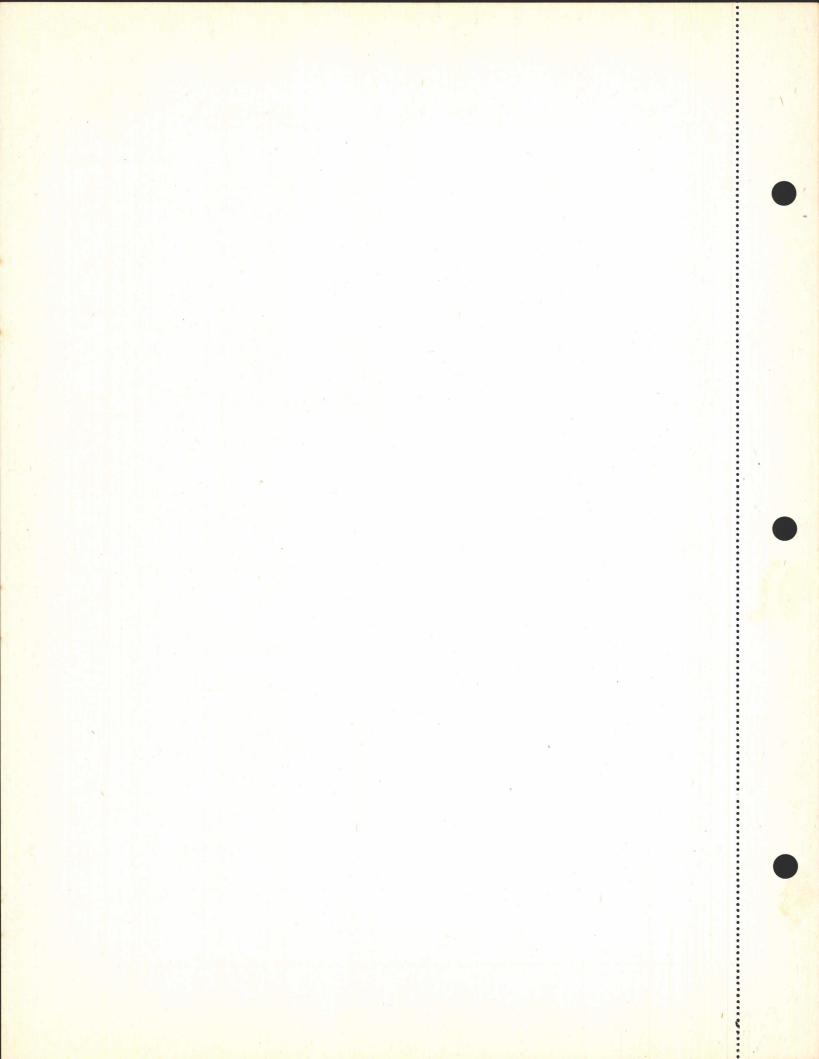
COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT	COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT
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(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Aft External			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			OIL (U. S. 7.5 & In	np. 9 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			FUEL (U.S.6&	Imp. 7.2 lb./gal.)		+
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	9 9			1		
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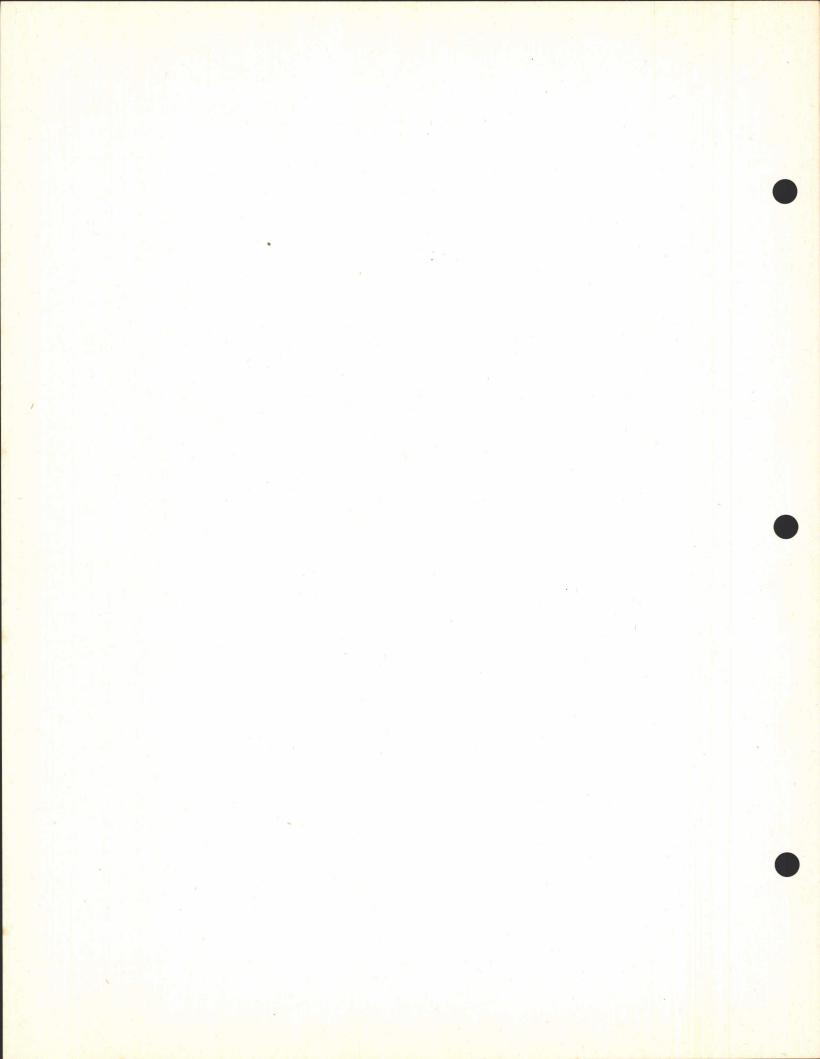
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Ib.	Crew Cargo TOTAL			Aft External			
Ib.	Crew Cargo TOTAL	-		OIL (U. S. 7.5 & Ir	mp. 9 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			FUEL (U.S.6&	Imp. 7.2 lb./gal.)		
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(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Minimum Landin	g Gross Weight Rd. () Cal.		,
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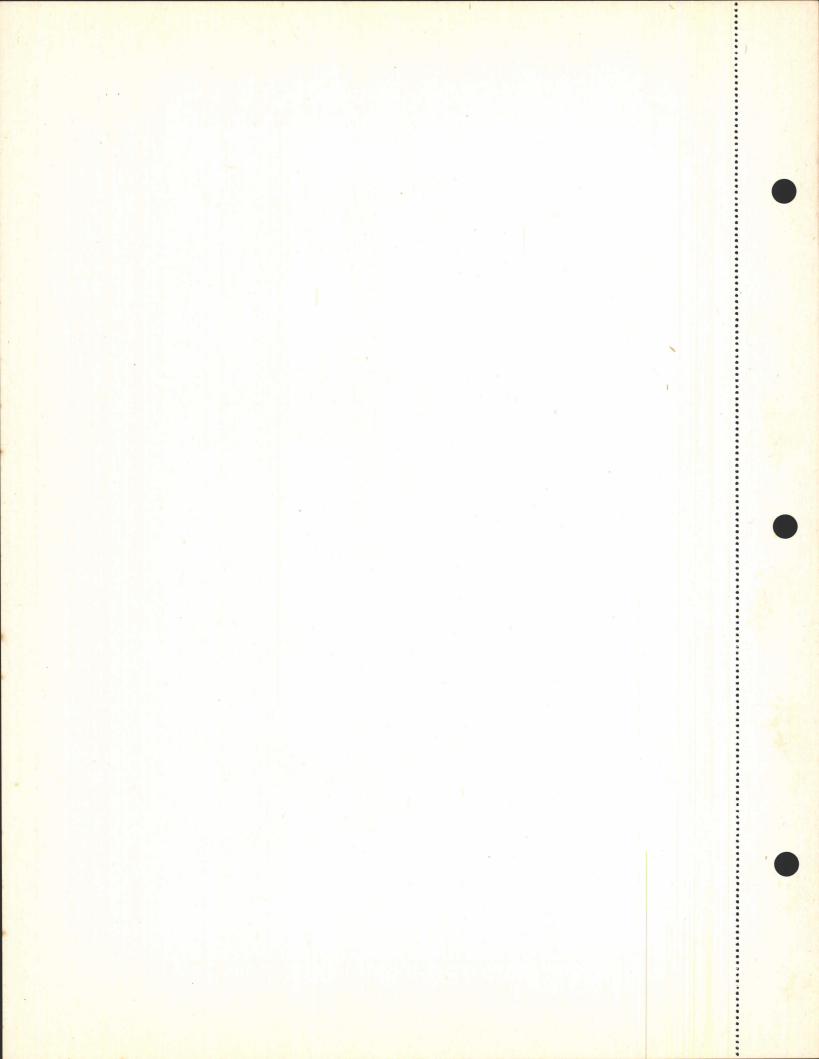


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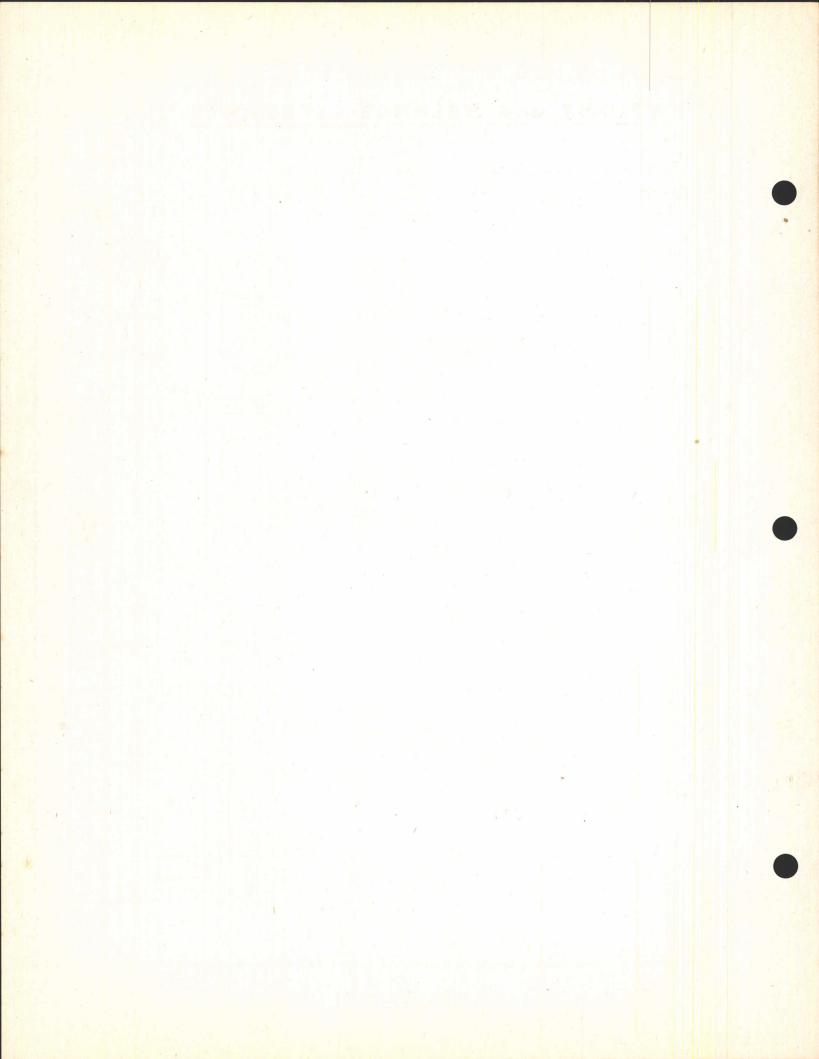


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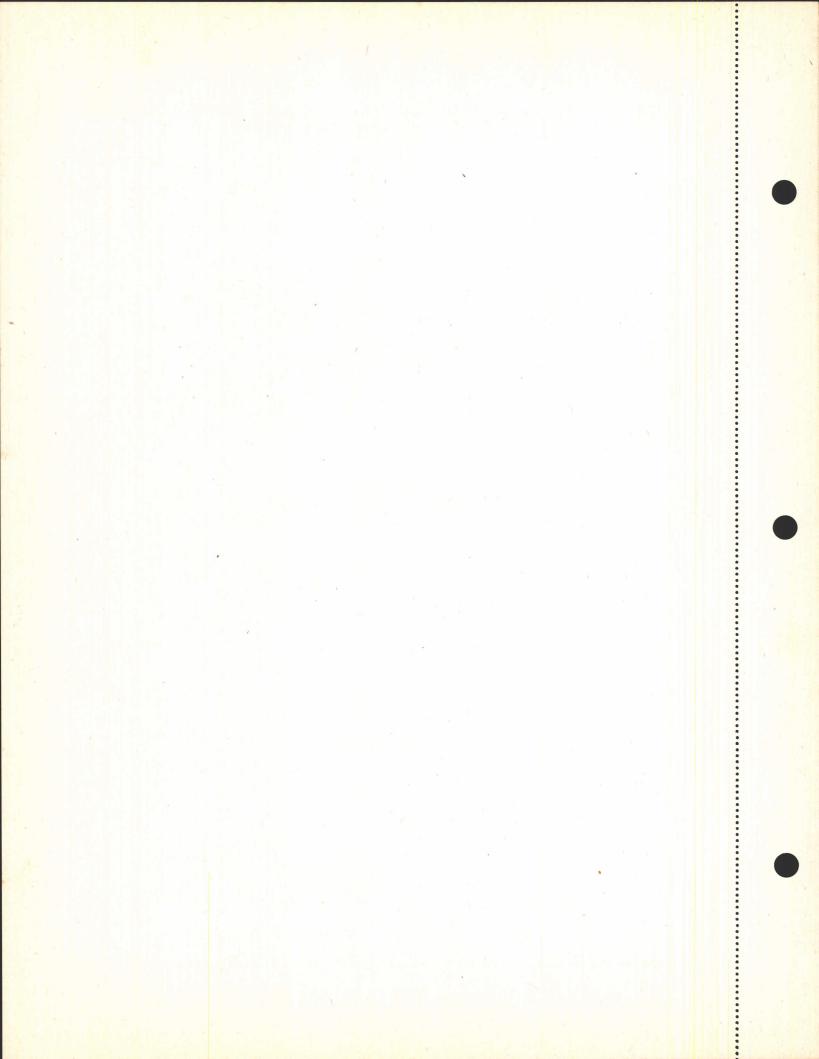
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(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	TOTAL		
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(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(By Compartment)			
Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			AMMUNITION (B)			
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Ib.	Crew Cargo TOTAL			Aft External			
Ib.	Crew Cargo TOTAL			OIL (U. S. 7.5 &	Imp. 9 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			FUEL (U.S.6	& Imp. 7.2 lb./gal.)	\	

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(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
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(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Aft External			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			OIL (U. S. 7.5 & Ir	np. 9 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			FUEL (U.S.6&	Imp. 7.2 lb./gal.)		
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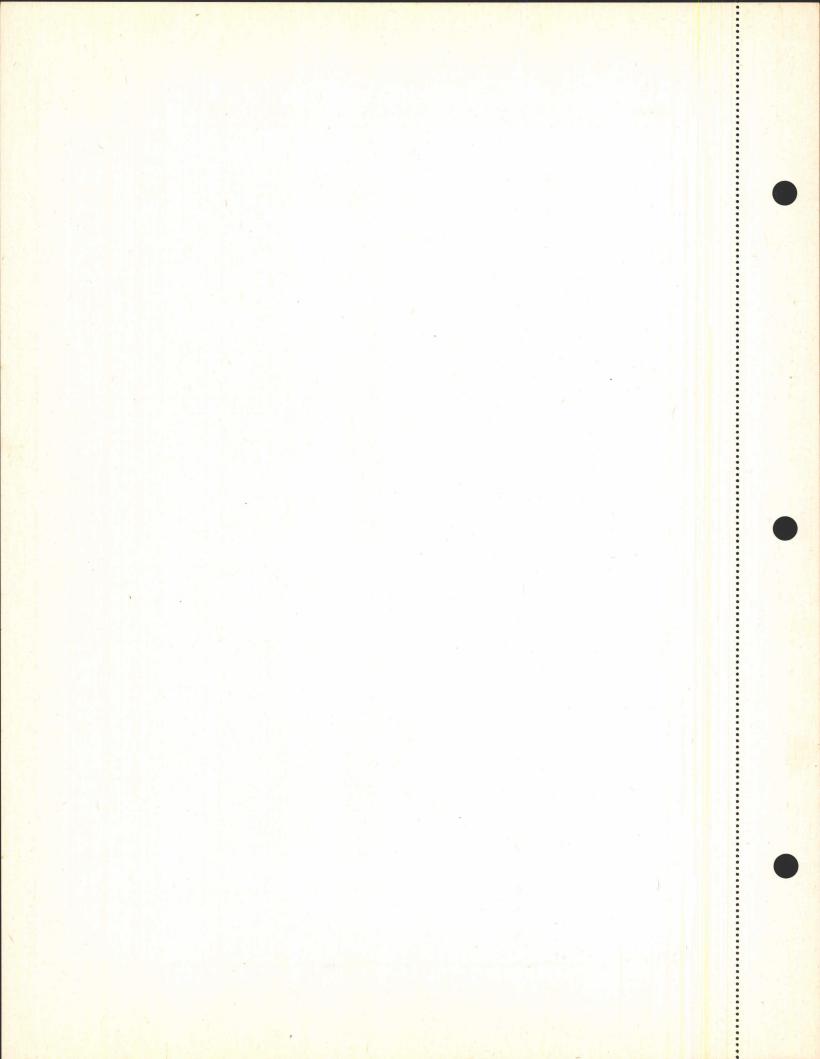


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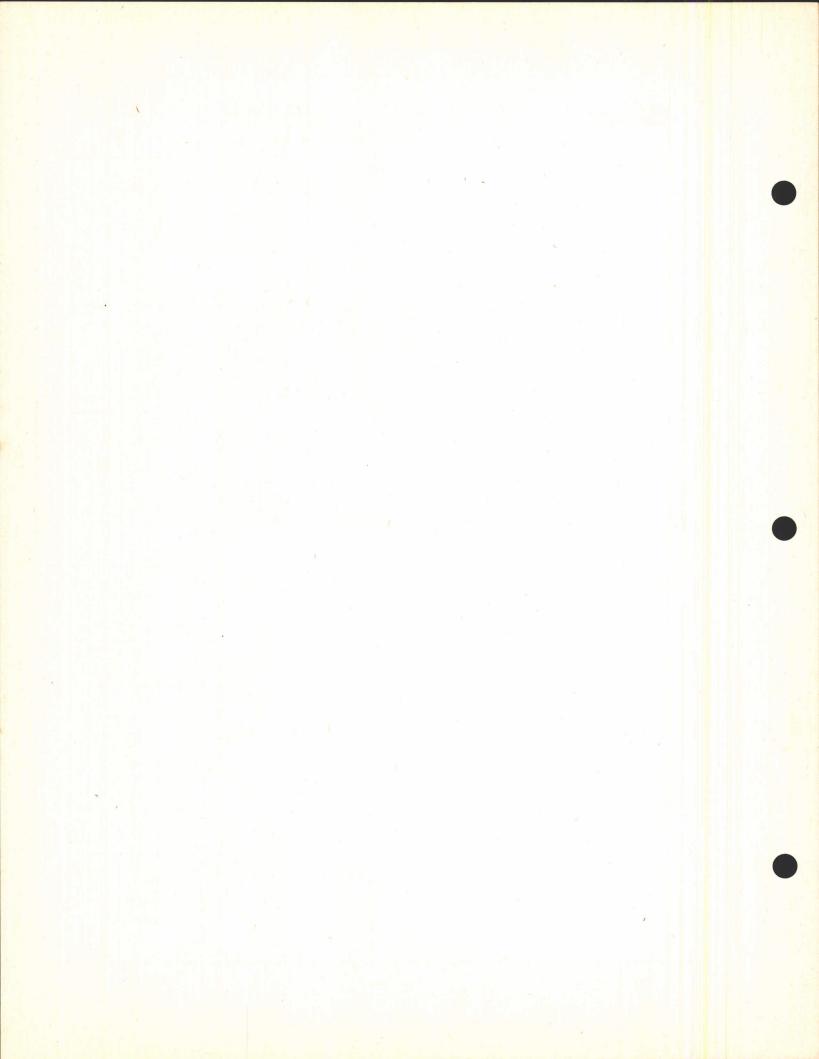
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Ib.	Crew Cargo TOTAL			OIL (U. S. 7.5 & I	mp. 9 lb./gal.)		
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M Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Bomb Bay:			
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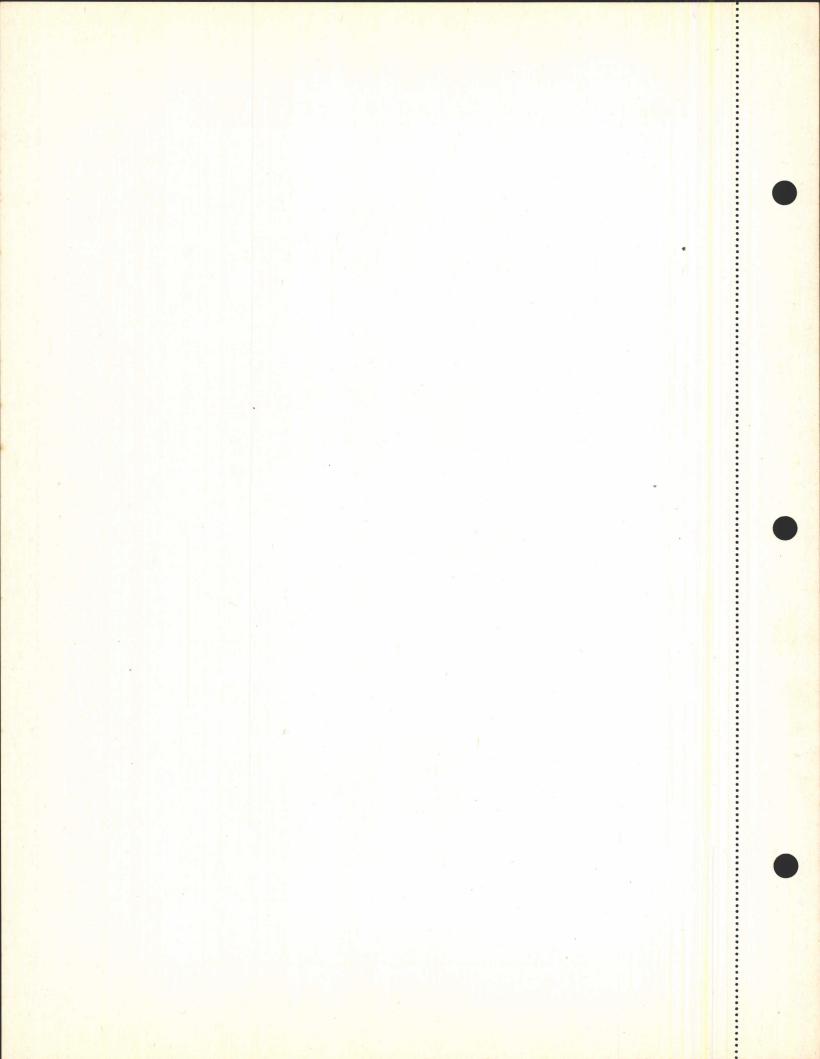
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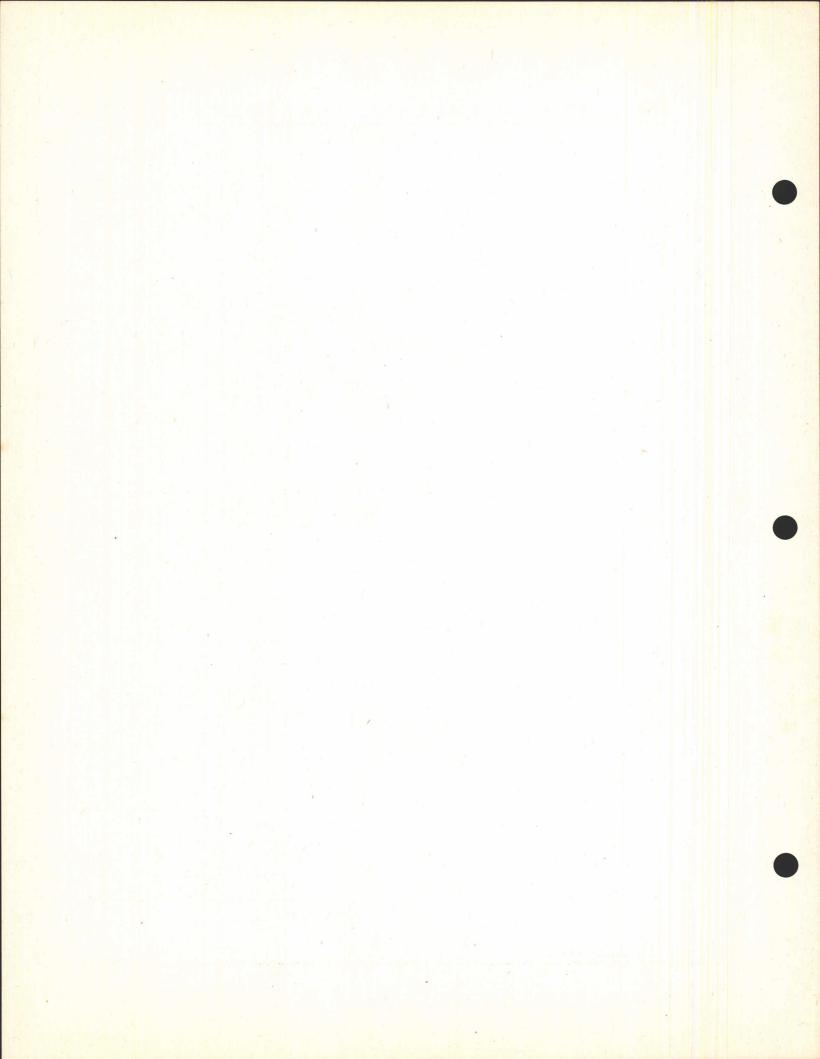
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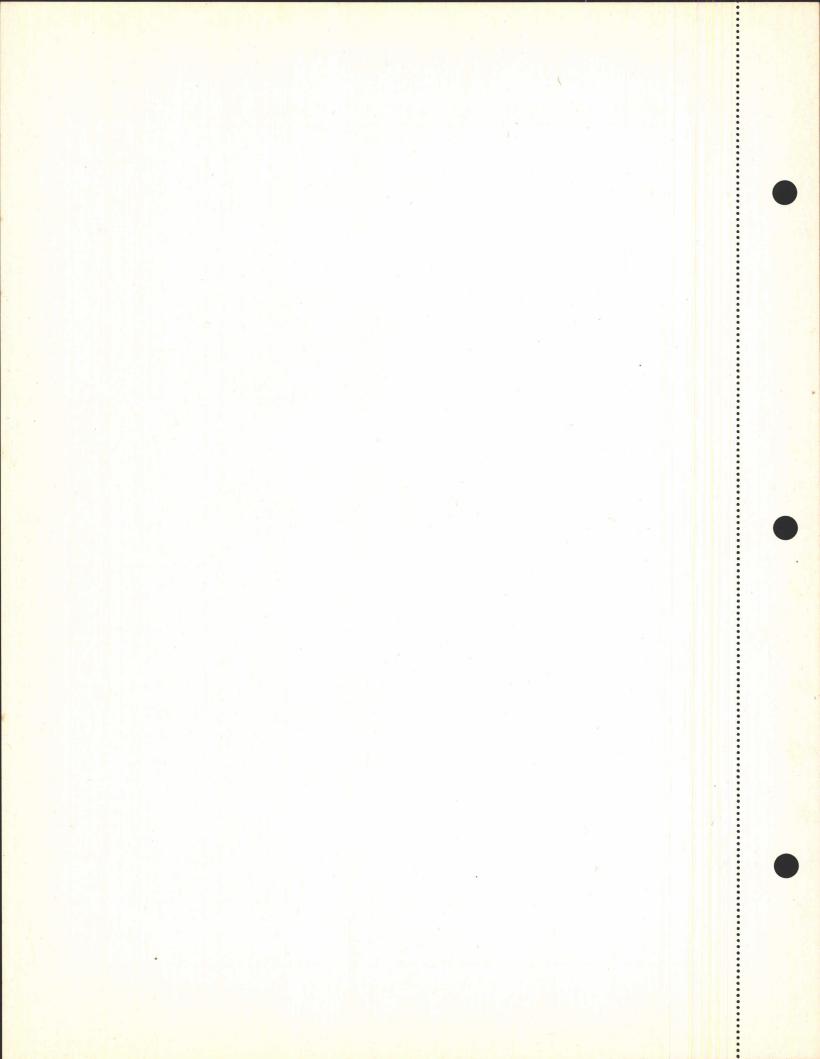


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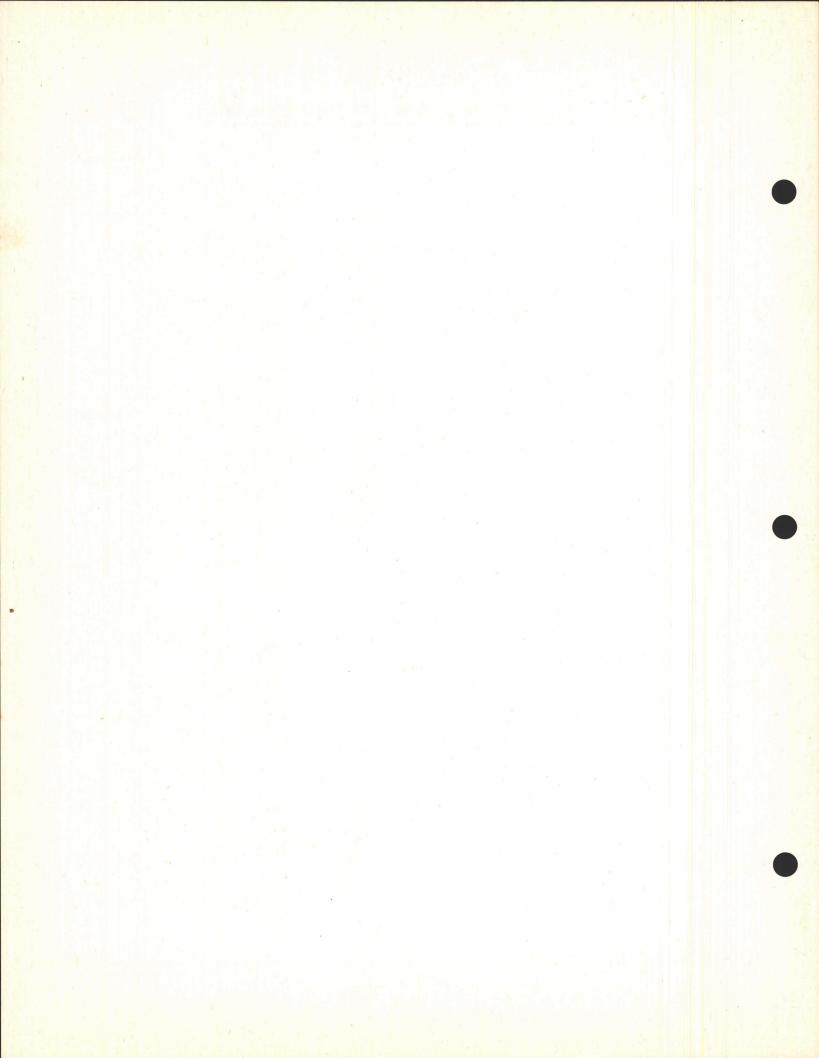
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N)	Crew			TOTAL WT. & IN	IDEX (Uncorrected)		
lb.	Cargo			Corrections (If	required)		
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P	Crew			COMPLITED	BY		
(STRUCTURAL	Cargo		_			/	
CAPACITY)	TOTAL			APPROVED E	BY		
TOTALS TO BE C	ARRIED FORWARD			PILOT			



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DATE______ MISSION______
AIRPLANE_____ FROM______
SERIAL NO._____ TO_____

COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT	COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT
Y	Basic Airplane			Y	Totals Brought Forward		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	, ,		(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	, , , ,		(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	- y _ 1		Minimum Landin	g Gross Weight Rd. () Cal.		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			By Compartment))	
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	1		AMMUNITION			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Forward			
Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Aft External			
J Ib.	Crew Cargo TOTAL		<i>K</i>	OIL (U. S. 7.5 & In	np. 9 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			FUEL (U.S.6&	Imp. 7.2 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL						
M Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL	5		Bomb Bay:			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		1	Corrections (If r	IDEX (Uncorrected) equired) VEIGHT & INDEX		
Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL				LIMITS I Max. Take-off Gross W I Max. Landing Gross W	eight	L
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	· ·		COMPUTED B	Υ		
TOTALS TO DE C	ARRIED FORWARD			PILOT			



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AIRPLANESERIAL NO				DN			
COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT	COMPARTMENT	ITEM	WEIGHT	INDEX C
Y	Basic Airplane			*	Totals Brought Forward		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
B Ib.	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	TOTAL		
(STRUCTURAL GAPACITY)	Crew Cargo TOTAL				ng Gross Weight Rd. () Cal.		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(By Compartment)			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		,	MAMAUNITION E			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Forward			
I Ib.	Crew Cargo TOTAL		41	MW External			
J Ib.	Crew Cargo TOTAL			OIL (U. S. 7.5 &	Imp. 9 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			FUEL (U.S.68	& Imp. 7.2 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL						
M Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Bomb Bay:			
N)	Crew			TOTAL WT. & I	NDEX (Uncorrected)		

Corrections (If required)
TAKE - OFF WEIGHT & INDEX

COMPUTED BY

APPROVED BY

PILOT

Recommended Max. Take-off Gross Weight

Recommended Max. Landing Gross Weight

LIMITS

LB.

LB.

(STRUCTURAL CAPACITY)

(STRUCTURAL CAPACITY)

(STRUCTURAL CAPACITY)

0

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Cargo

Crew

Cargo

Crew

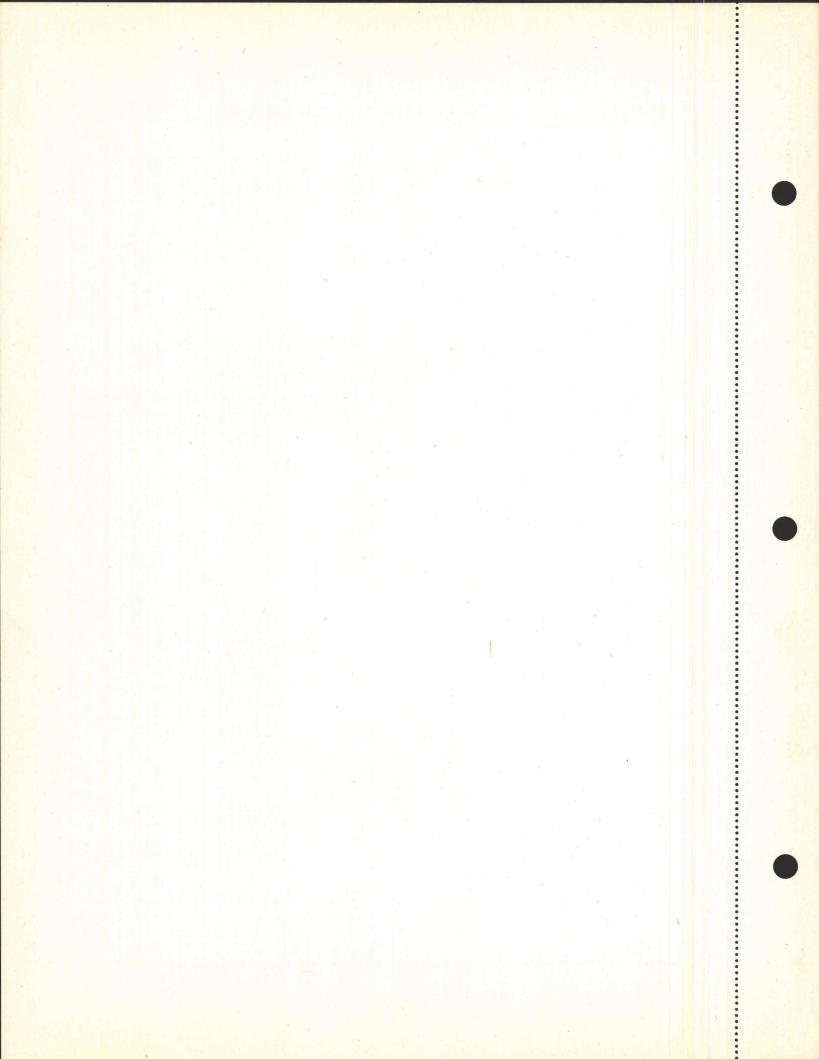
Cargo

TOTALS TO BE CARRIED FORWARD

TOTAL

TOTAL

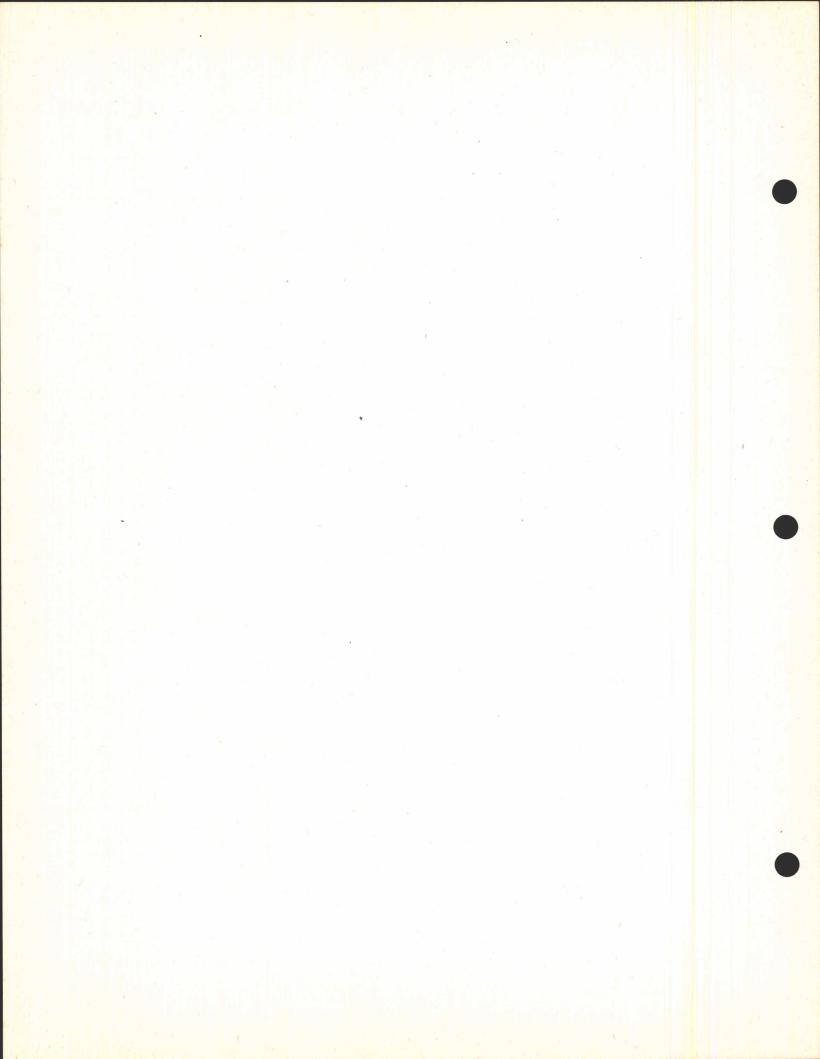
TOTAL



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AIRPLANE	FROM
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COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT	COMPARTMENT	ITEM	WEIGHT	INDEX OR
Y	Basic Airplane	WEIGHT	MOMENT	Y	Totals Brought Forward		INDEX OR MOMENT
A Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL	6		(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		- (
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	1	- 1	(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	3		Minimum Landin	g Gross Weight Rd. () Cal.		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			By Compartment)			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			AMMUNITION			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Forward			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Aft External			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			OIL (U. S. 7.5 & In	np. 9 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			FUEL - (U.S.6&	Imp. 7.2 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL						
M Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Bomb Bay:			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	*	2	Corrections (If r	DEX (Uncorrected) equired) VEIGHT & INDEX		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Recommended	LIMIT Max. Take-off Gross \ Max, Landing Gross \	Weight	LI
P Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			COMPUTED B	YY		
	ARRIED FORWARD			PILOT			



DATEAIRPLANESERIAL NO.			_ MISSIC)N	FO	FORM F		
			I INDEX OR			1		INDEX OF
COMPARTMENT	ITEM Basic Airplane	WEIGHT	MOMENT	COM	PARTMENT	Totals Brought Forward	WEIGHT	MOMENT
A Ib. (STRUCTURAL CAPACITY)	Crew			Q (STR	Ib.	Crew		
B Ib.	Crew Cargo TOTAL			(STF CA	lb. RUCTURAL APACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STF CA	lb. RUCTURAL APACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			CA	lb. RUCTURAL APACITY)	TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL					g Gross Weight Rd. () Cal.		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(By Compartment)			-	
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			AMMUNITION (B				
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		\		Forward			
Ib.	Crew Cargo TOTAL			ω –	Aft External			
Ib.	Crew Cargo TOTAL			OIL (U. S. 7.5 & Ir	mp. 9 lb./gal.)	Andrews and Antonophical States	
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			FUEL	(U. S. 6 &	Imp. 7.2 lb./gal.)		,
L Ib.	Crew Cargo TOTAL							
M Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Bomb	b Bay:			
N Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Corre	ections (If i	NDEX (Uncorrected) required) WEIGHT & INDEX		

COMPUTED BY

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PILOT_

Recommended Max. Take-off Gross Weight

Recommended Max. Landing Gross Weight

LB.

LB.

TOTAL

TOTAL

Crew Cargo

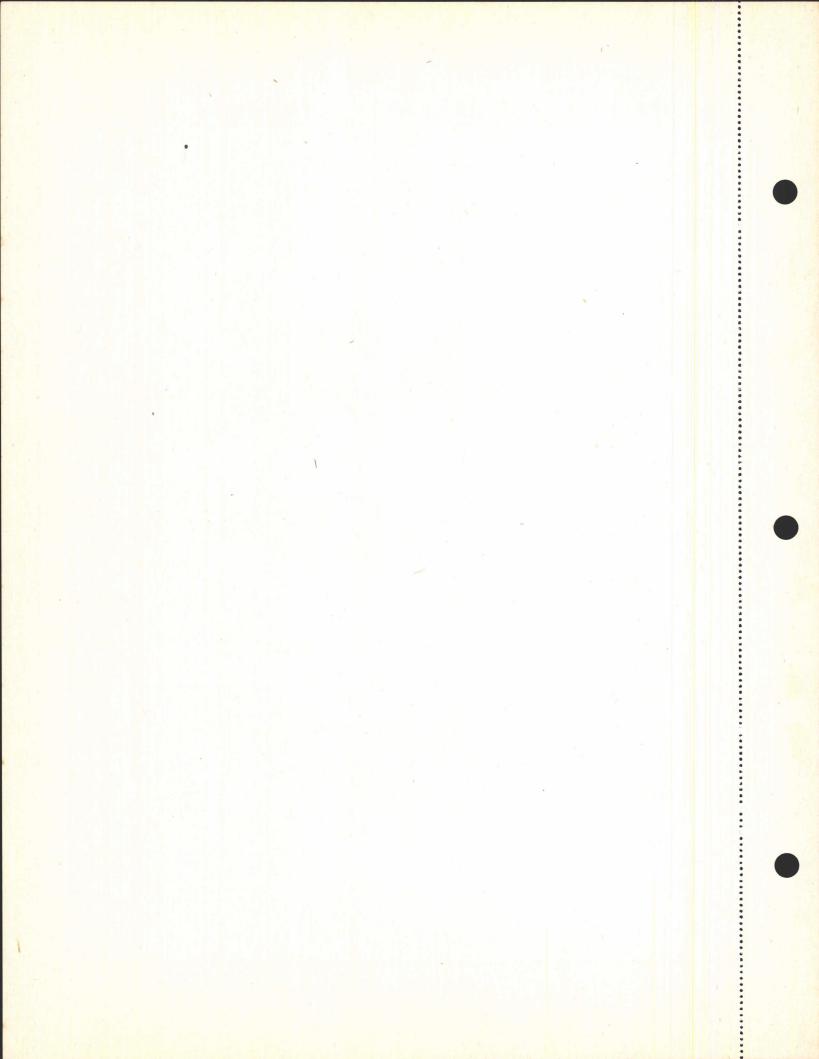
Crew Cargo

TOTALS TO BE CARRIED FORWARD

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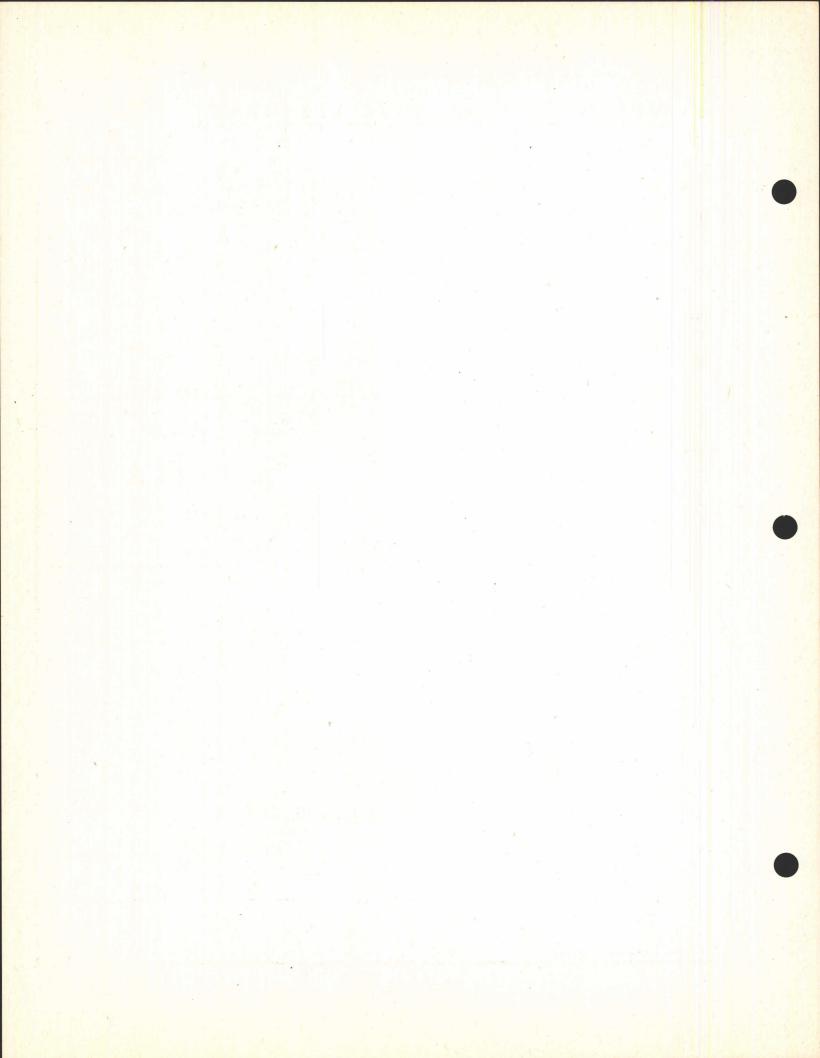
(STRUCTURAL CAPACITY)



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DATE	MISSION	
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EDIAL NO	TO	

COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT	COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT
· Y	Basic Airplane			Y	Totals Brought Forward		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
B Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		-	(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		2	(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Minimum Landin	g Gross Weight Rd. () Cal.		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			By Compartment)			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			AMMUNITION			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Forward			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Aft External			
Ib.	Crew Cargo TOTAL			OIL (U. S. 7.5 & In	np. 9 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			FUEL (U.S.6&	Imp. 7.2 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			1			
M Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL		r	Bomb Bay:			
N Ib.	Crew Cargo TOTAL			Corrections (If r	IDEX (Uncorrected) equired) VEIGHT & INDEX		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Recommended	LIMITS Max. Take-off Gross W Max. Landing Gross W	eight	L
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		. 19		ΥΥ		1. 11
TOTALS TO BE C	ARRIED FORWARD		V	PILOT			



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OMPARTMENT *	ITEM Basic Airplane	WEIGHT	INDEX OR MOMENT	CO	MPARTMENT *	Totals Brought Forward	WEIGHT	INDEX OR MOMENT
	Crew			Q		Crew	X	
(STRUCTURAL CAPACITY)	Cargo TOTAL			(!	Ib. STRUCTURAL CAPACITY)	Cargo TOTAL		×
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	Ti Ti		R	lb. STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
lb. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			S	lb. STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL				CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			-	-	g Gross Weight Rd. () Cal.		- 1
Ib.	Crew Cargo TOTAL			(By Compartment)			\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
Ib.	Crew Cargo TOTAL			AMMUNITION (E				
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			AMM	Forward			
Ib.	Crew Cargo TOTAL	*		BOMBS	Aft External			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	1		OI	_ (U. S. 7.5 & In	np. 9 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	Y		FU	EL (U.S.6&	Imp. 7.2 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL							
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Вог	mb Bay:			
Ib.	Crew Cargo TOTAL		. *	TOTAL WT. & INDEX (Uncorrected) Corrections (If required) TAKE - OFF WEIGHT & INDEX				

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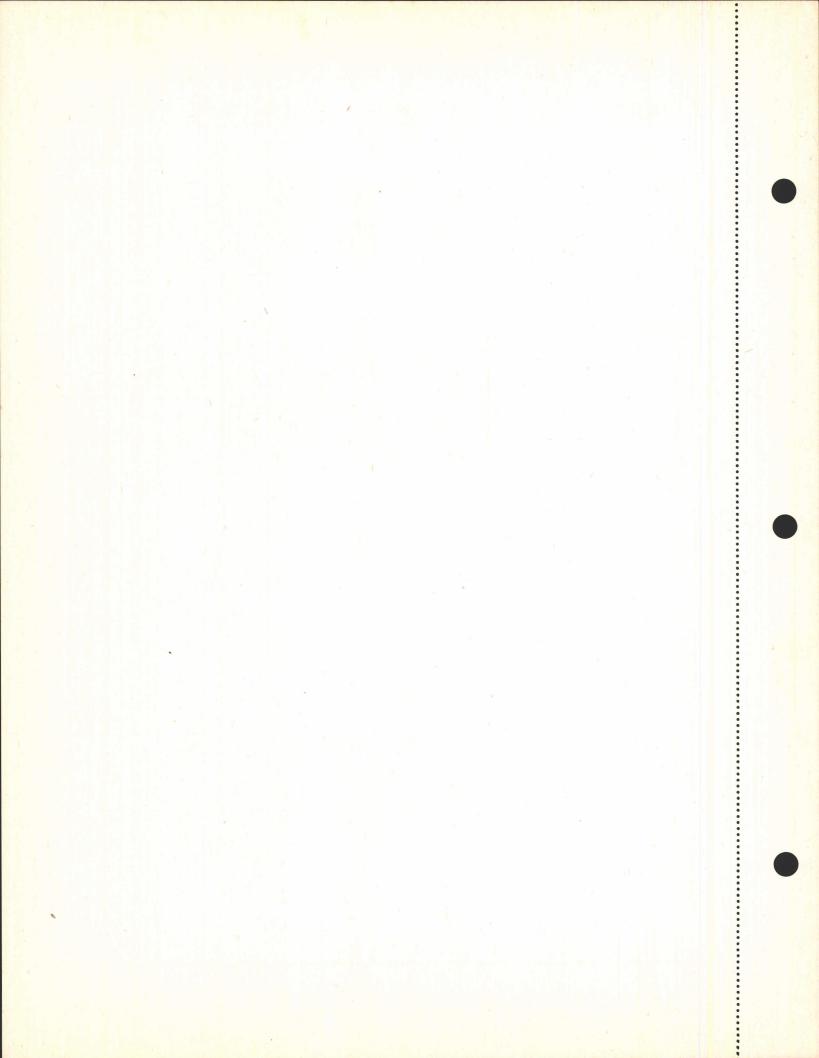
PILOT_

Crew Cargo

TOTALS TO BE CARRIED FORWARD

TOTAL

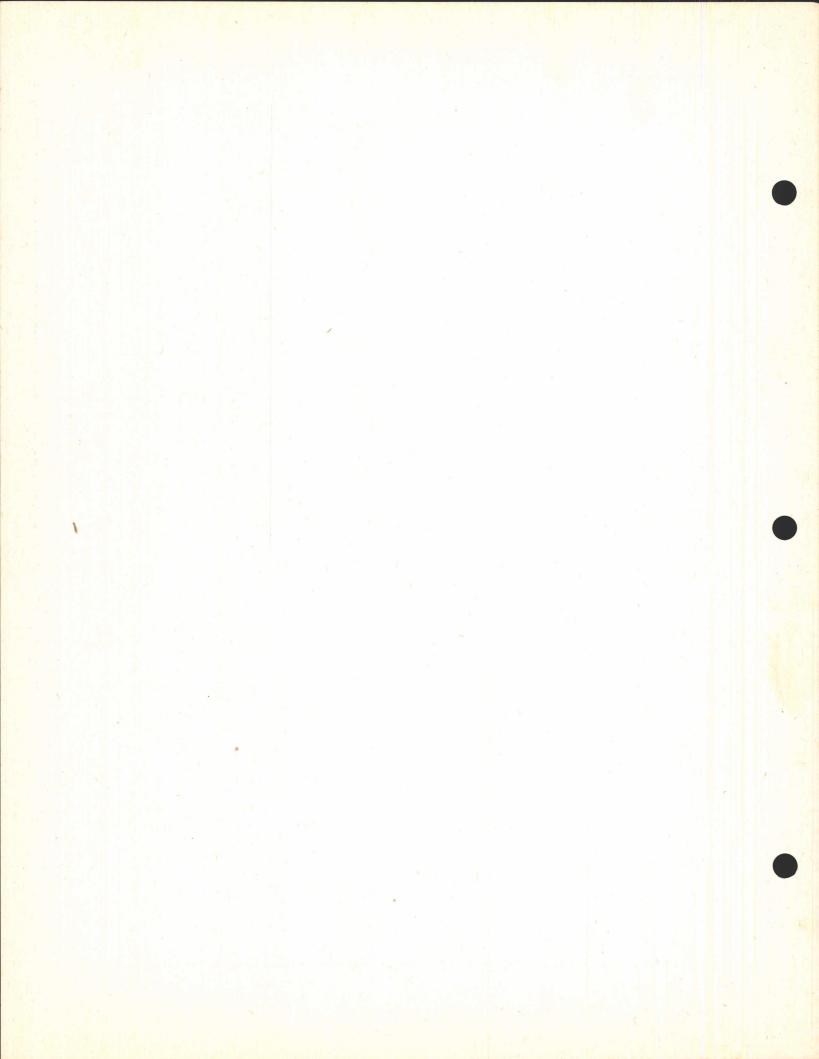
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SERIAL NO	TO

COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT	COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT
Ψ	Basic Airplane			Y	Totals Brought Forward		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	, A	
B Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL		1 1	(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	The state of the s	
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Minimum Landin	Rd. () Cal.		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL:			By Compartment)			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			MAUNITION			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Forward			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Aft External			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			OIL (U. S. 7.5 & In	np. 9 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	, =	× 1	FUEL (U.S.6&	Imp. 7.2 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		-				
M Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL		1	Bomb Bay:			
N Ib.	Crew Cargo TOTAL			Corrections (If r	DEX (Uncorrected) equired) VEIGHT & INDEX		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Recommended	LIMITS Max. Take-off Gross W Max. Landing Gross W	/eight	LE LE
(STRUCTURAL CAPACITY)	Crew Cargo			COMPUTED B	YY		
TOTALS TO BE CO	ARRIED FORWARD			PILOT			



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COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT	col	MPARTMENT	ITEM	WEIGHT	INDEX C
Ψ	Basic Airplane			1	Υ	Totals Brought Forward		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Q (S	Ib. TRUCTURAL CAPACITY)	Crew Cargo TOTAL		
B Ib.	Crew Cargo TOTAL			R	lb. TRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(5)	lb.	Crew Cargo TOTAL		
Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(5	Ib.	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL				-	g Gross Weight Rd. () Cal.		
Ib.	Crew Cargo TOTAL			(By Compartment)				
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			AMMUNITION (E				
Ib.	Crew Cargo TOTAL			AMM	Forward			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	. 1		BOMBS	Aft External			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			OII	_ (U. S. 7.5 & li	mp. 9 lb./gal.)		1
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	•	,	FU	EL (U.S.6&	Imp. 7.2 lb./gal.)		
Ib.	Crew Cargo TOTAL							
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Bor	mb Bay:			
Ib.	Crew Cargo TOTAL			Со	rrections (If	NDEX (Uncorrected) required) WEIGHT & INDEX		

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Recommended Max. Take-off Gross Weight

Recommended Max. Landing Gross Weight

LB.

LB.

TOTAL

TOTAL

Crew

Cargo

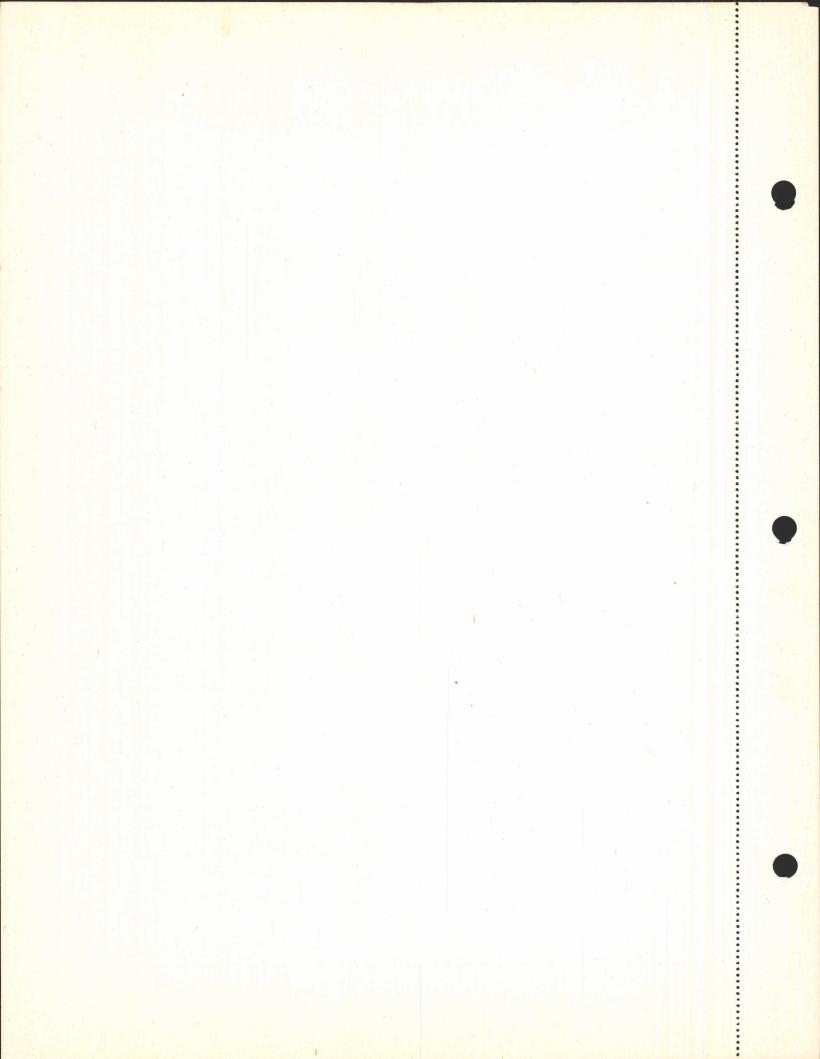
Crew Cargo

TOTALS TO BE CARRIED FORWARD

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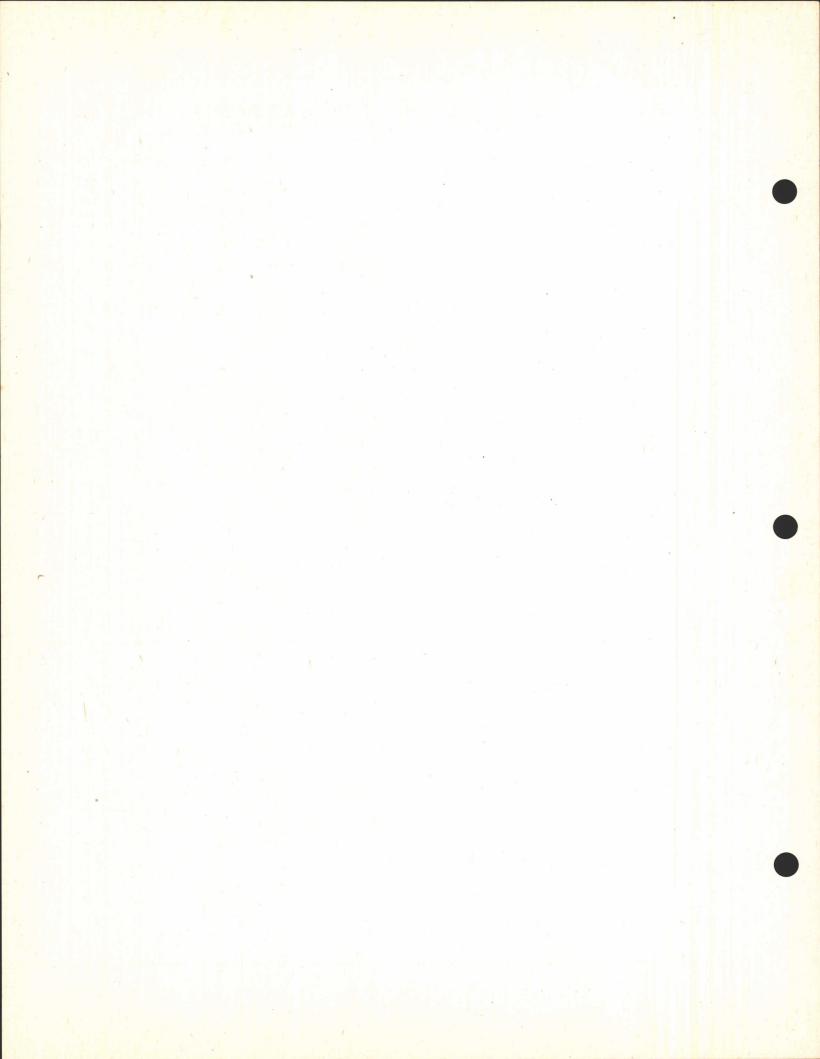
(STRUCTURAL CAPACITY)



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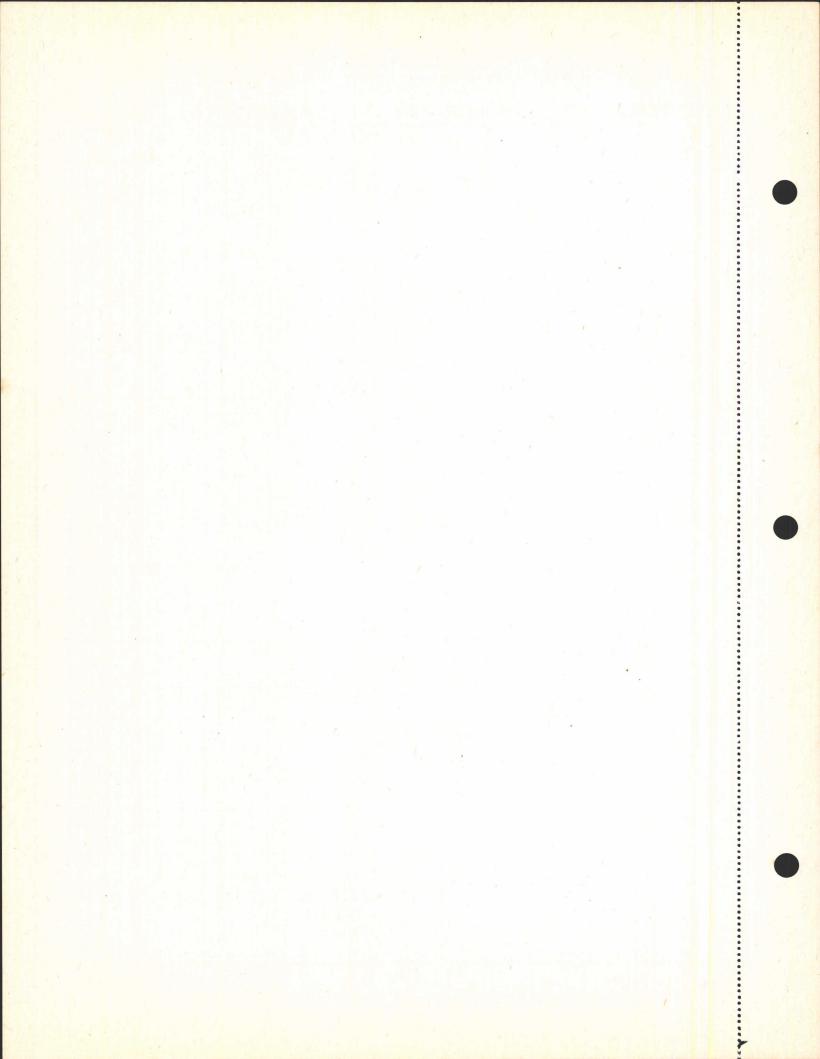
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COMPARTMENT	ITEM Basic Airplane	WEIGHT	INDEX OR MOMENT	COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT
Ψ	Crew Cargo			Q lb.	Crew Cargo		
(STRUCTURAL CAPACITY)	TOTAL			(STRUCTURAL CAPACITY)	TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	j. F		(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	Contract of the Contract of th	
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
• "	Crew		2	Minimum Landin	12000		
(STRUCTURAL CAPACITY)	Cargo TOTAL			ment)	Rd. () Cal.		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			By Compartment)			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			MAUNITION			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Forward			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Aft External			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			OIL (U. S. 7.5 & In	np. 9 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			FUEL (U.S.6&	Imp. 7.2 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL						
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Bomb Bay:		Y -	
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Corrections (If r	IDEX (Uncorrected) equired) VEIGHT & INDEX		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	1		Recommended	LIMITS I Max. Take-off Gross W I Max. Landing Gross W		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	1			Y		
	ARRIED FORWARD	-		PILOT			



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COMPARTMENT	ITEM Basic Airplane	WEIGHT	INDEX OR MOMENT	COMPARTMENT	ITEM Totals Brought
(STRUCTURAL CAPACITY)	Crew			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL
B Ib	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL

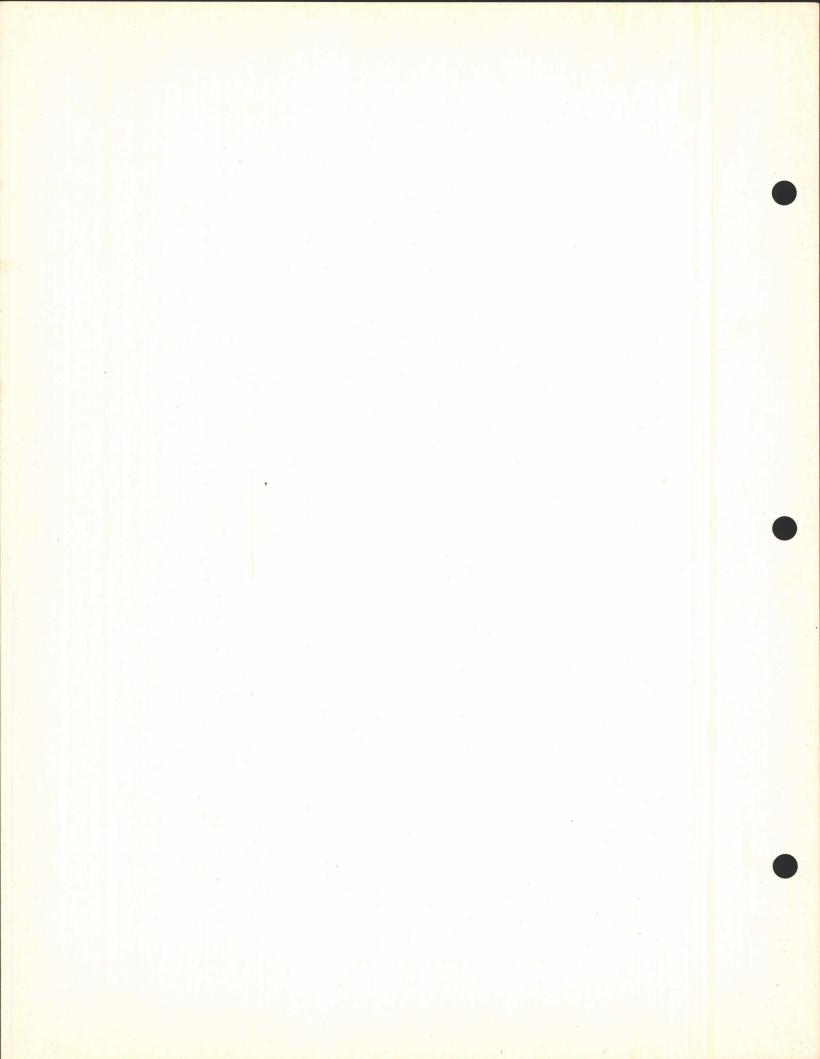
COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT	COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT
Υ	Basic Airplane			Y	Totals Brought Forward		The state of the s
A Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		x
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		*	(STRUCTURAL CAPACITY)	TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		1	Minimum Landin	g Gross Weight Rd. () Cal.		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(By Compartment)			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			AAMUNITION (1)			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Forward			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Aft External			
J Ib.	Crew Cargo TOTAL			OIL (U. S. 7.5 & In	mp. 9 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			FUEL (U.S.6&	Imp. 7.2 lb./gal.)	2	
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL						
M Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Bomb Bay:			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	- 3		Corrections (If	NDEX (Uncorrected) required) WEIGHT & INDEX		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Recommended	LIMITS d Max. Take-off Gross W d Max. Landing Gross W		LE LE
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL				3Y		
	ARRIED FORWARD			PILOT			



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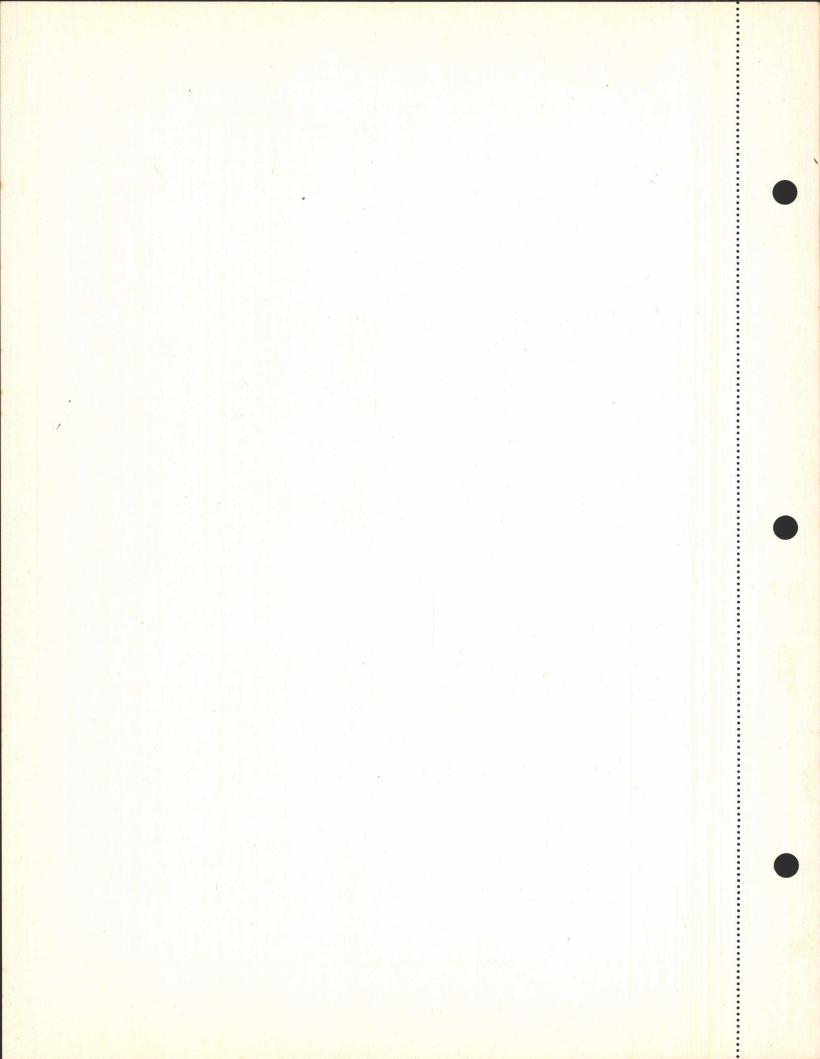
COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT	COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT
Y	Basic Airplane			Y	Totals Brought Forward		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	/-	e e	(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		, a	(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TÓTAL			Minimum Landin	g Gross Weight Rd. () Cal.		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		, .	(By Compartment)			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			ammunition (8)			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Forward			
Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Aft External			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			OIL (U. S. 7.5 & In	np. 9 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			FUEL - (U.S.6&	lmp. 7.2 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL						
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Bomb Bay:		,	
N Ib.	Crew Cargo TOTAL			Corrections (If r	DEX (Uncorrected) equired) VEIGHT & INDEX		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	-			LIMITS Max. Take-off Gross V Max. Landing Gross V	Veight	L L
P Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			COMPUTED B			
	ARRIED FORWARD			PILOT			



AIRPLANESERIAL NO				DNF
COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT	COMPARTMENT ITEM WEIGHT INDEX COMPANDEN
Y	Basic Airplane Crew	+		Totals Brought Forward Crew
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY) (STRUCTURAL CAPACITY) TOTAL
B Ib.	Crew Cargo TOTAL			R Crew Cargo CAPACITY TOTAL
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			S Crew Cargo CAPACITY TOTAL
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		,	T Crew Cargo Caracity TOTAL
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	- %		Minimum Landing Gross Weight () Rd. () Cal.
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	,		() Rd. () Cal.
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			AMMUNITION (By
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Forward
Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL		Y	Aft External
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		-	OIL (U. S. 7.5 & Imp. 9 lb./gal.)
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			FUEL - (U. S. 6 & Imp. 7.2 lb./gal.)
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		. •	
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Bomb Bay:
Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL		7	TOTAL WT. & INDEX (Uncorrected) Corrections (If required) TAKE - OFF WEIGHT & INDEX
Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL	-7		LIMITS Recommended Max. Take-off Gross Weight Recommended Max. Landing Gross Weight
P	Crew Cargo	*		COMPUTED BY APPROVED BY

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TOTALS TO BE CARRIED FORWARD

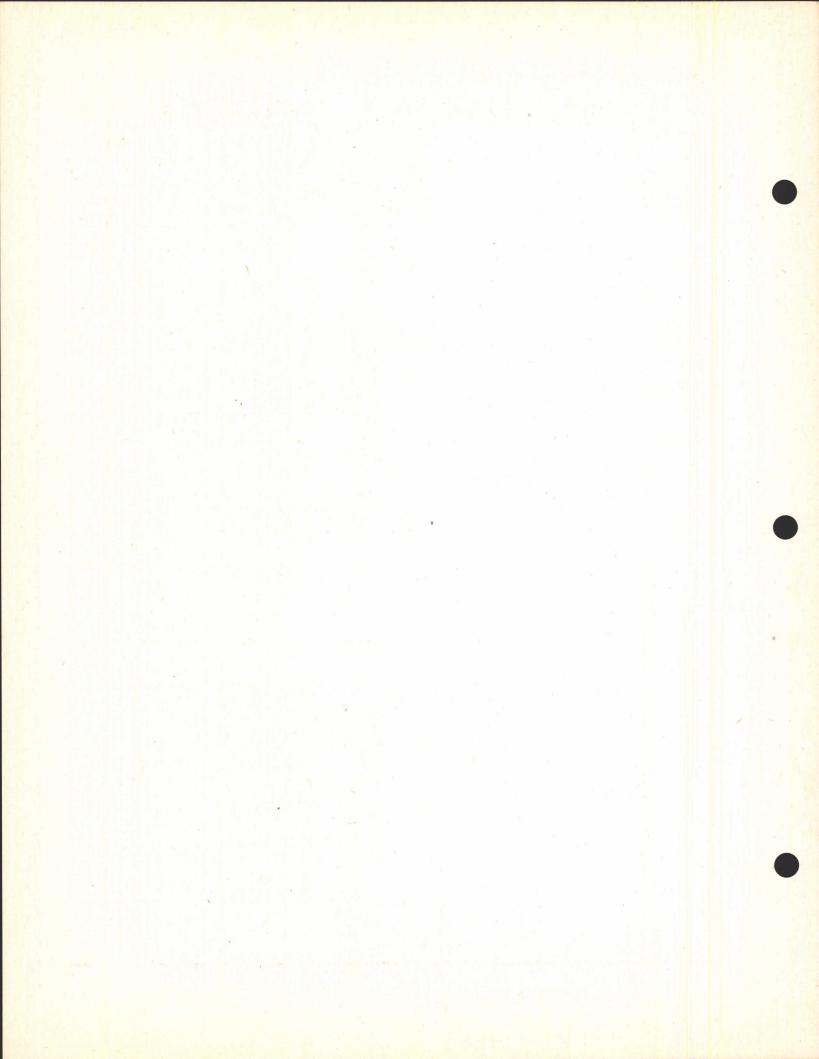


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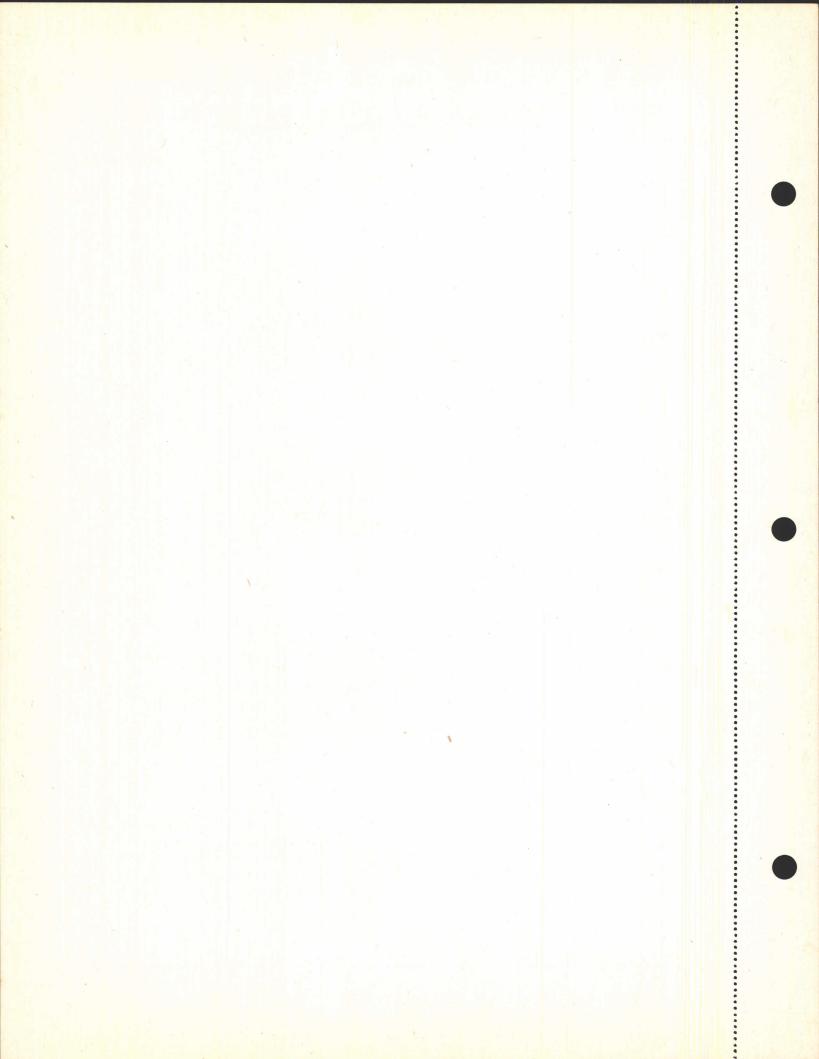
FORM	1

DATE	MISSION
AIRPLANE	FROM
EDIAL NO	70

COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT	COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT
Y	Basic Airplane			Y	Totals Brought Forward		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
B Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Minimum Landin	g Gross Weight Rd. () Cal.		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			By Compartment)			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			AMMUNITION			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Forward			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Aft External			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		,	OIL (U. S. 7.5 & In	np. 9 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			FUEL (U.S.6&	Imp. 7.2 lb./gal.)		
L Ib.	Crew Cargo						
Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Bomb Bay:			
Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Corrections (If r	DEX (Uncorrected) equired) VEIGHT & INDEX	,	
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Recommended	LIMITS Max. Take-off Gross We Max. Landing Gross We		L
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL				YY		
TOTALS TO BE C	ARRIED FORWARD		-	PILOT			



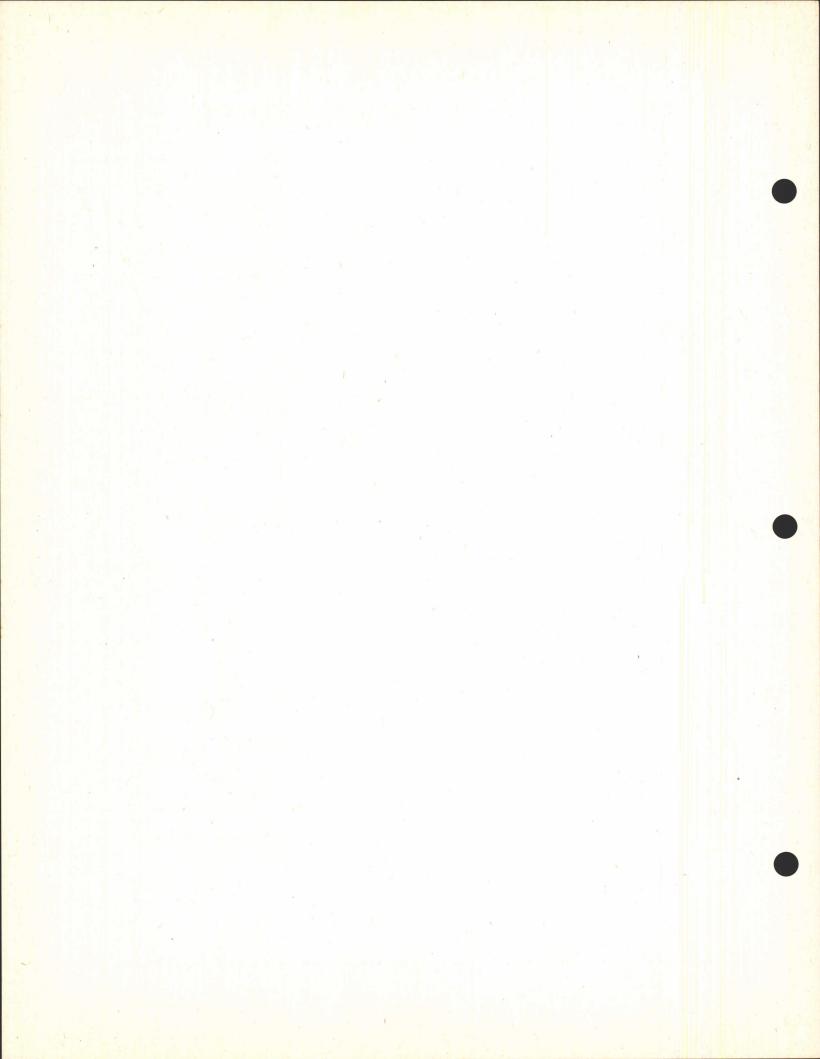
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COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT	COMPARTMENT		WEIGHT	INDEX OR MOMENT		
· Y	Basic Airplane			Y	Totals Brought Forward				
Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL	3		(STRUCTURAL CAPACITY)	b. Crew Cargo TOTAL				
B	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL				
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew b. Cargo TOTAL				
Ib.	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	b. Crew TOTAL				
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL				ding Gross Weight) Rd. () Cal.				
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		2000 21	(By Compartment)					
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			MAMOUTION OF THE PROPERTY OF T					
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Forward					
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Aft External					
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			OIL (U. S. 7.5 8	& Imp. 9 lb./gal.)				
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		* .	FUEL (U.S.	6 & Imp. 7.2 lb./gal.)				
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	,							
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Bomb Bay:					
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		× 10	Corrections (I	f required) WEIGHT & INDEX				
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			LIMITS Recommended Max. Take-off Gross Weight Recommended Max. Landing Gross Weight					
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			COMPUTED BYAPPROVED BY					
	CARRIED FORWARD			PILOT					



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DATE	MISSION
AIRPLANE	FROM

COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT	COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT
Y	Basic Airplane			Y	Totals Brought Forward		7.11
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		v.	(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
B Ib.	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	Transition of the same of the	
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Minimum Landin	g Gross Weight Rd. () Cal.		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		, P	(By Compartment)			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			AMMUNITION (6		,	
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Forward			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Aft External			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			OIL (U. S. 7.5 & In	np. 9 lb./gal.)		-
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			FUEL (U.S.6&	Imp. 7.2 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		·				
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Bomb Bay:			
N Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Corrections (If r	DEX (Uncorrected) equired) VEIGHT & INDEX		
STRUCTURAL CAPACITY)	Crew Cargo TOTAL	× ,		Recommended	LIMITS Max. Take-off Gross W Max. Landing Gross W	/eight	LI
P Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			COMPUTED B			
TOTALCTORE	ARRIED FORWARD			PILOT			



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AIRPLAN	IE							
SERIAL	10		то					
COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT	CON	APARTMENT	ITEM	WEIGHT	INDEX O
*	Basic Airplane		- 13		*	Totals Brought Forward		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(5)	lb. FRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL				Ib. TRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL				lb. TRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			· c	lb. TRUCTURAL CAPACITY)	TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL				-	g Gross Weight Rd. () Cal.		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(By Compartment)				
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			AMMUNITION (E				
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			AMM	Forward			
Ib.	Crew Cargo TOTAL		X	BOMBS	Aft External			
Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			OIL	. (U. S. 7.5 & Ir	mp. 9 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			FUE	EL (U. S. 6 &	Imp. 7.2 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL							
M) Ib.	Crew Cargo			Bon	nb Bay:			

Crew

Cargo TOTAL

Crew

Crew

TOTALS TO BE CARRIED FORWARD

Cargo

Cargo

TOTAL

TOTAL

(STRUCTURAL CAPACITY)

(STRUCTURAL CAPACITY)

(STRUCTURAL CAPACITY)

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TOTAL WT. & INDEX (Uncorrected)

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PILOT

Corrections (If required)
TAKE - OFF WEIGHT & INDEX

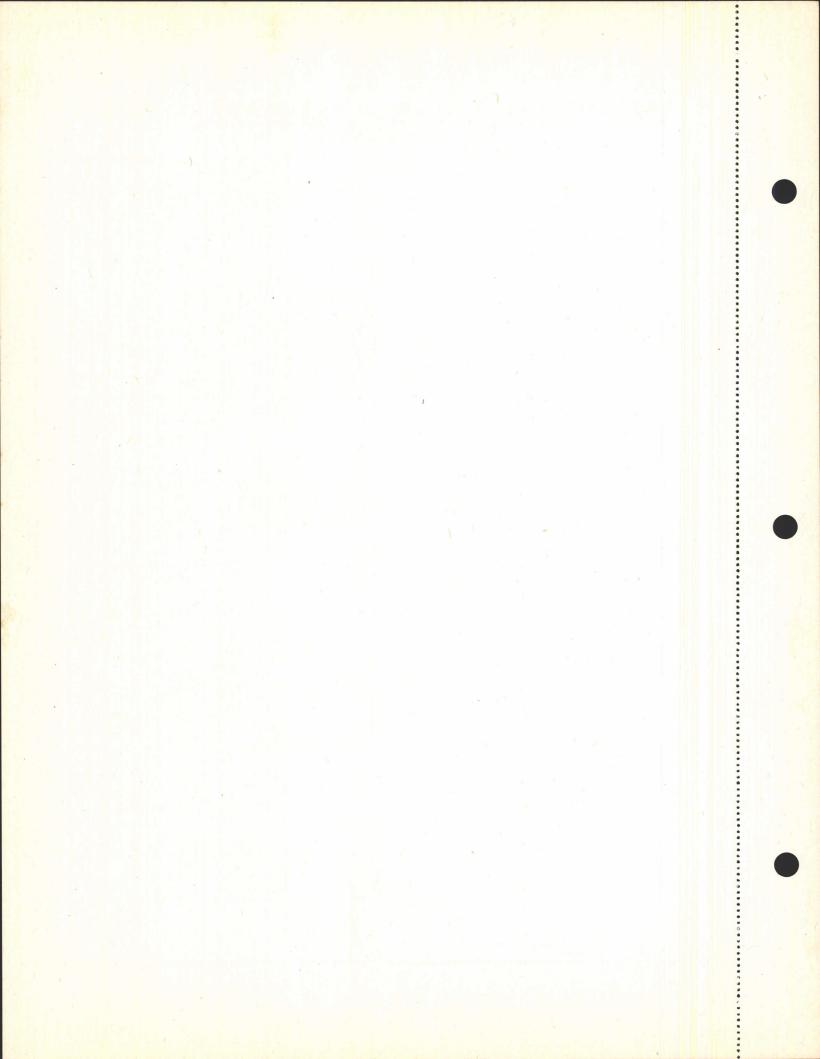
Recommended Max. Take-off Gross Weight

Recommended Max. Landing Gross Weight

LIMITS

LB.

LB.



DATE AIRPLANE SERIAL NO				ssion						
COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT	coi	MPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		,	Q	Ib. TRUCTURAL CAPACITY)	Crew Cargo TOTAL				
B lb. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			R	lb. TRUCTURAL CAPACITY)	Crew Cargo TOTAL				
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	× 1		(5)	TRUCTURAL CAPACITY)	Crew Cargo TOTAL				
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			. (lb. TRUCTURAL CAPACITY)	TOTAL				
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			_		g Gross Weight Rd. () Cal.				
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		- 3	(By Compartment)						
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			AMMUNITION (B						
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			AMM	Forward					
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			BOMBS	Aft External					
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			OII	_ (U. S. 7.5 & li	mp. 9 lb./gal.)				
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			FU	EL - (U. S. 6 &	lmp. 7.2 lb./gal.)				
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL				-					
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		8	Bor	mb Bay:					
Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Со	rrections (If	NDEX (Uncorrected) required) WEIGHT & INDEX				
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL					LIMITS d Max. Take-off Gross W d Max. Landing Gross W	Veight			

COMPUTED BY APPROVED BY

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LB.

LB.

Crew Cargo

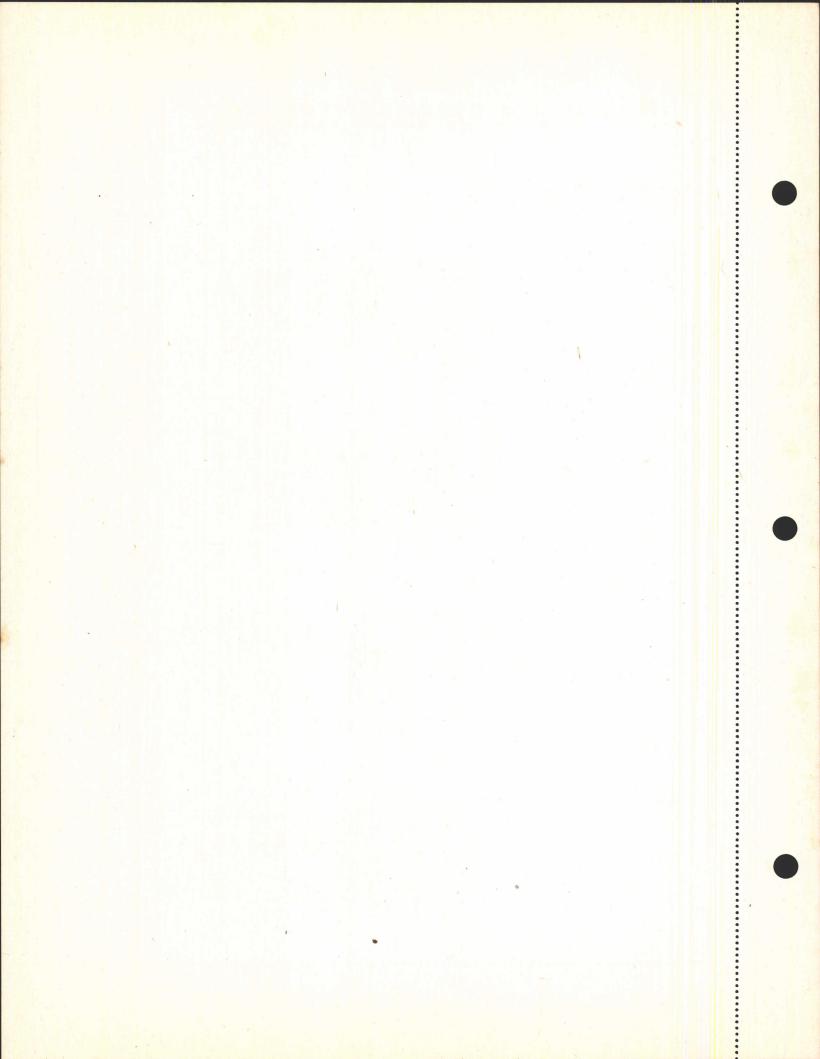
TOTALS TO BE CARRIED FORWARD

TOTAL



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DATE	MISSION	
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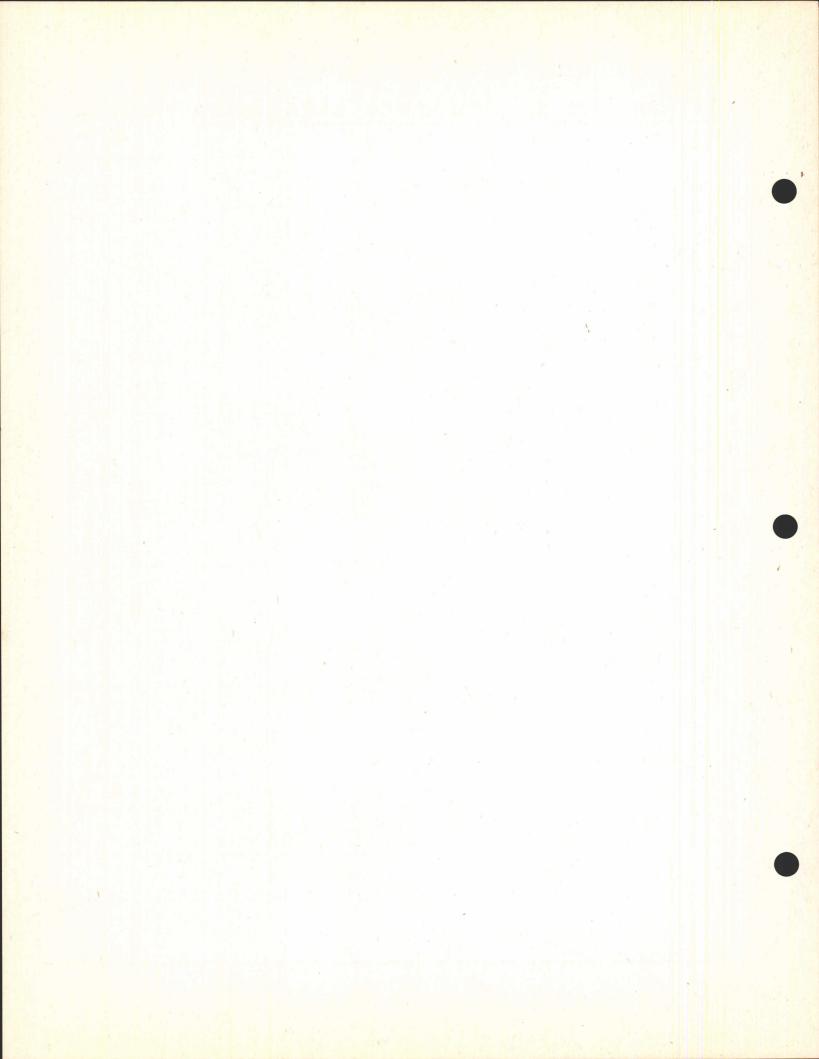
COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT	COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT
Y	Basic Airplane		MOMENT	Y	Totals Brought Forward		MOMENT
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL				Rd. () Cal.		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(By Compartment)			1
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			AMMUNITION (8			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Forward			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Aft External			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			OIL (U. S. 7.5 & I	mp. 9 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	. 2.1 2		FUEL (U.S.68	k Imp. 7.2 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL						
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Bomb Bay:			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			TOTAL WT. & INDEX (Uncorrected) Corrections (If required) TAKE - OFF WEIGHT & INDEX			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	•		LIMITS Recommended Max. Take-off Gross Weight Recommended Max. Landing Gross Weight			LI LI
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL				BY		
	ARRIED FORWARD			PILOT			



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DATE	MISSION
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COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT	COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT
Ψ	Basic Airplane			Y	Totals Brought Forward		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
B Ib.	Crew Cargo TOTAL		,	(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		1
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Minimum Landin	g Gross Weight Rd. () Cal.		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			By Compartment)			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			MMUNITION			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Forward			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Aft External			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			OIL (U. S. 7.5 & In	np. 9 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			FUEL (U.S.6&	Imp. 7.2 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL						
M Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Bomb Bay:			
N Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Corrections (If r	DEX (Uncorrected) equired) VEIGHT & INDEX		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Recommended	LIMITS Max. Take-off Gross W Max. Landing Gross W	eight	LI
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		8		YY		
	ARRIED FORWARD			PILOT			



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	E						
SERIAL N	10						
COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT	COMPARTMENT	ITEM	WEIGHT	INDEX O
Y	Basic Airplane	Z 1		Y	Totals Brought Forward		
A lb.	Crew Cargo	1		Q lb.	Crew Cargo		
(STRUCTURAL CAPACITY)	TOTAL			(STRUCTURAL CAPACITY)	TOTAL		
	7	1		1	Crew		
B	Crew Cargo			R lb.			
(STRUCTURAL CAPACITY)	TOTAL			(STRUCTURAL CAPACITY)	TOTAL		
c	Crew			(S)	Crew	-	
lb.	Cargo	L		lb.	Cargo		
(STRUCTURAL CAPACITY)	TOTAL			(STRUCTURAL CAPACITY)	TOTAL		
I	Crew		,	(T)	Crew		
STRUCTURAL	Cargo	I	100	(STRUCTURAL			
CAPACITY)	TOTAL			CAPACITY)	TOTAL		
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CAPACITY)	TOTAL	1		Compartment)			
F) ,,	Crew	¥		D d L			
(STRUCTURAL	Cargo TOTAL		3		A 1		
CAPACITY)	7	1	-	(B)	7		
G lb.	Crew Cargo			NO CONTRACTOR			
(STRUCTURAL CAPACITY)	TOTAL			E			1
	Crew	I	 	AMMUNITION			
H)lb.	Cargo	*		A -			
(STRUCTURAL CAPACITY)	TOTAL			Forward			
	Crew						
lb.	Cargo			W External			
(STRUCTURAL CAPACITY)	TOTAL			8			
) "	Crew						
STRUCTURAL	Cargo			OIL (U. S. 7.5 &	Imp. 9 lb./gal.)		
CAPACITY)	TOTAL						
K)	Crew						
Ib.	Cargo	1		FUEL (U.S. 6	& Imp. 7.2 lb./gal.)		
CAPACITY)	TOTAL	· 		-			
lb.	Crew						
(STRUCTURAL CAPACITY)	Cargo TOTAL		-				
				+			
Mlb.	Crew Cargo	- 1		Bomb Bay:			
(STRUCTURAL CAPACITY)	TOTAL			bonib bay:			
	7				NDEX (Uncorrected)		

Corrections (If required)
TAKE - OFF WEIGHT & INDEX

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PILOT

LIMITSRecommended Max. Take-off Gross Weight

Recommended Max. Landing Gross Weight

LB.

LB.

(STRUCTURAL CAPACITY)

(STRUCTURAL CAPACITY)

(STRUCTURAL CAPACITY)

P

Cargo TOTAL

Crew

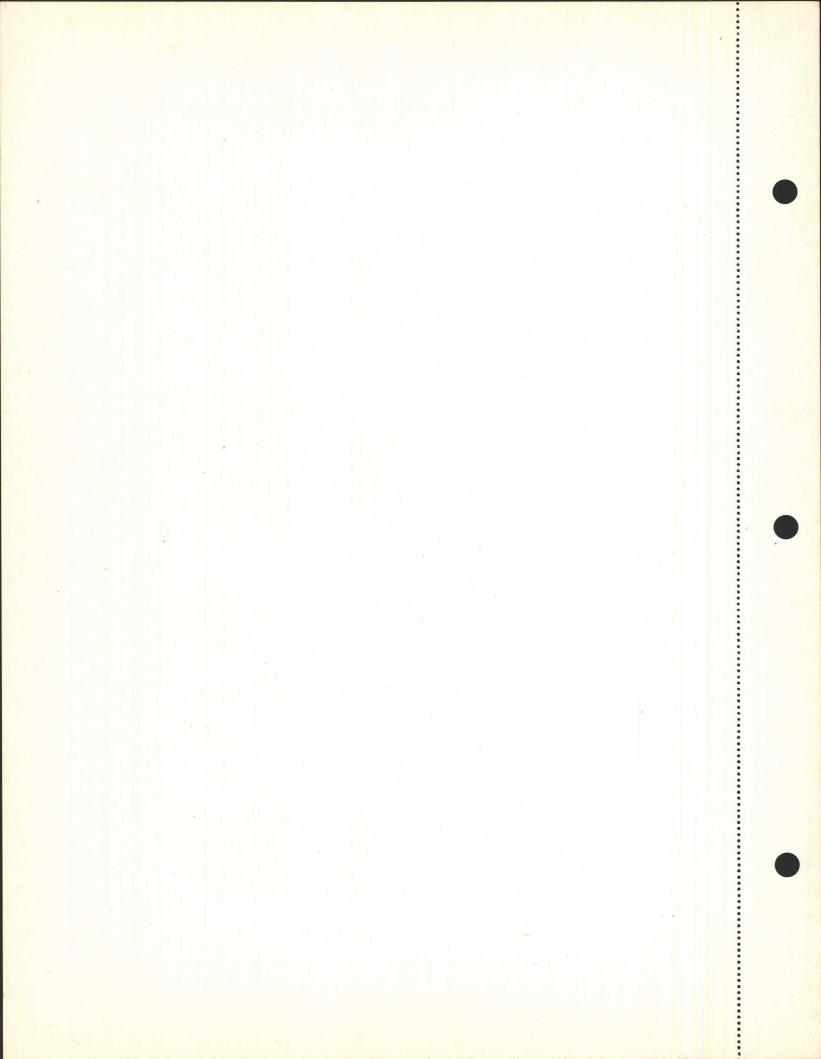
Cargo

Crew Cargo

TOTALS TO BE CARRIED FORWARD

TOTAL

TOTAL



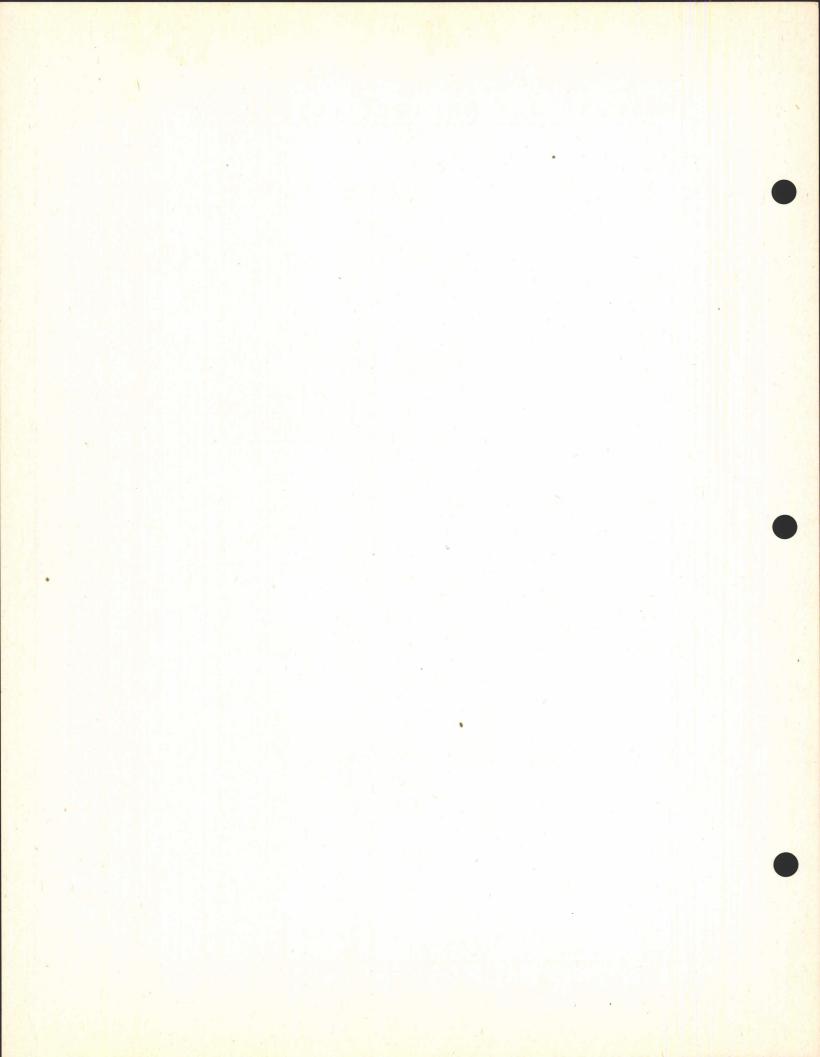
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WEIGHT and BALANCE CLEARANCE

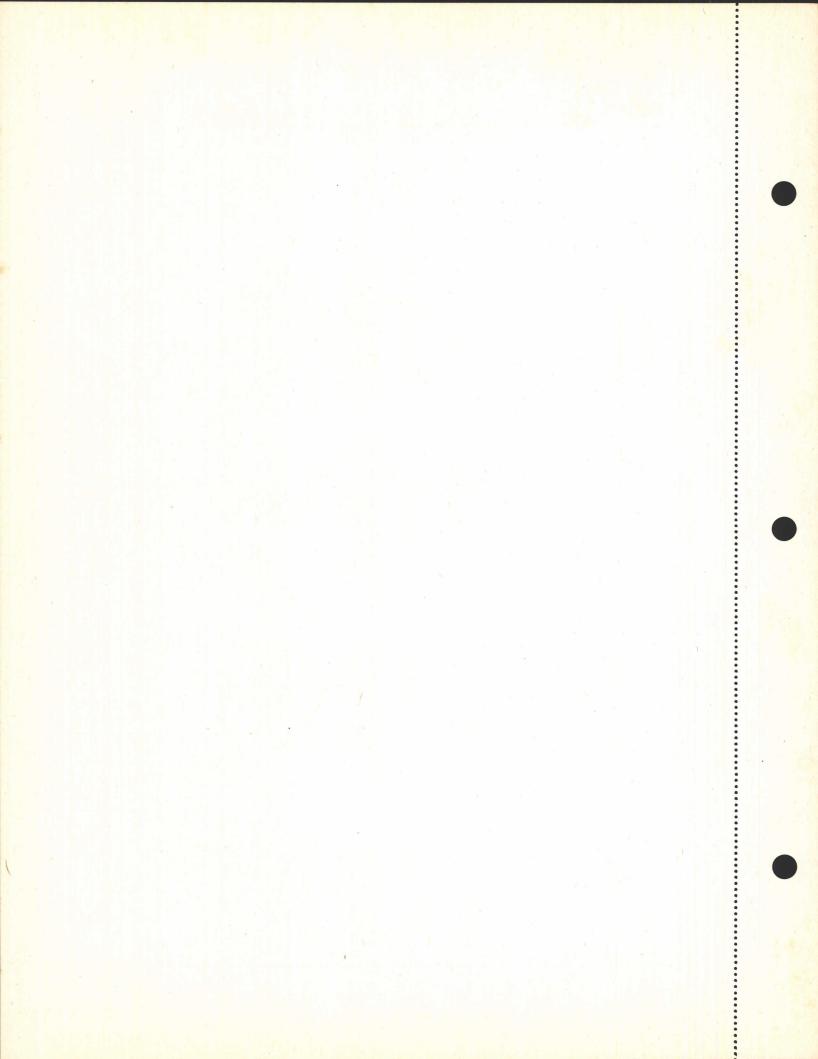
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AIRPLANE	FROM	
ERIAL NO.	TO	

COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT	COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT
Y	Basic Airplane			Y	Totals Brought Forward		
A) "	Crew			Q	Crew		
(STRUCTURAL	Cargo TOTAL			(STRUCTURAL			
CAPACITY)	7			CAPACITY)	TOTAL		
] lb.	Crew Cargo			R lb.	Crew Cargo		
(STRUCTURAL CAPACITY)	TOTAL		1	(STRUCTURAL CAPACITY)	TOTAL		
					7	-	
lb.	Crew Cargo			S lb.	Crew Cargo		
(STRUCTURAL CAPACITY)	TOTAL			(STRUCTURAL CAPACITY)	TOTAL		
	Crew			(T)	Crew		
lb.	Cargo	1		lb.	Cargo	1	
(STRUCTURAL CAPACITY)	TOTAL	·		(STRUCTURAL CAPACITY)	TOTAL		
E)	Crew			Minimum Landin	g Gross Weight		
(STRUCTURAL	Cargo	1		£ ()	Rd. () Cal.	A	
CAPACITY)	TOTAL			Compartment)			
F "	Crew			D du			
(STRUCTURAL	Cargo TOTAL				Too Dec		
CAPACITY)	,			· · · · · · · · · · · · · · · · · · ·			
3 lb.	Crew Cargo			NO		- 1	
(STRUCTURAL CAPACITY)	TOTAL			EN .			
earaciii)	Crew			AMMUNITION			
lb.	Cargo			A			
(STRUCTURAL CAPACITY)	TOTAL			Forward			
	Crew			A fu			
lb.	Cargo		AND THE RESERVE TO THE PERSON OF THE PERSON	External			
(STRUCTURAL CAPACITY)	TOTAL			m m			
	Crew						
(STRUCTURAL CAPACITY)	Cargo TOTAL			OIL (U. S. 7.5 & Ir	mp. 9 lb./gal.)		
K) lb.	Crew Cargo			FUEL (U.S.6&	Imp 7.2 lb /==11		
(STRUCTURAL CAPACITY)	TOTAL			Ι ΟΕΕ (0. 3. 8 α	iiip. 7.2 ib./ gai.]		
CATACITY (Crew					-	
lb.	Cargo			1 1			
(STRUCTURAL CAPACITY)	TOTAL						
	Crew		,				
(STRUCTURAL	Cargo			Bomb Bay:		17	
CAPACITY)	TOTAL						
	Crew				IDEX (Uncorrected)		
(STRUCTURAL	Cargo TOTAL			Corrections (If r	required)		-
CAPACITY)	7			TAKE - OFF V	VEIGHT & INDEX		san ta ann amhainm ann ann ann
lb.	Crew Cargo			Recommended	LIMITS Max. Take-off Gross W	eight	
(STRUCTURAL CAPACITY)	TOTAL				Max. Landing Gross W		
	Crew					9	
lb.	Cargo			COMPUTED B	IY		
(STRUCTURAL CAPACITY)	TOTAL			APPROVED B	SY		
TOTALS TO BE C	ARRIED FORWARD		1	PILOT			



	E		FROM_ TO	DN		-	
OMPARTMENT	ITEM Basic Airplane	WEIGHT	INDEX OR MOMENT	COMPARTMENT	ITEM Totals Brought Forward	WEIGHT	INDEX OR MOMENT
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew		
Ib.	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
Ib.	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	TOTAL		
Ib.	Crew Cargo TOTAL			Minimum Landin	Rd. () Cal.		
STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(By Compartment)			
Ib.	Crew Cargo TOTAL		1	AMMUNITION (B			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	1		Forward			
Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL		- 7 - 1	Aft External			
STRUCTURAL CAPACITY)	Crew Cargo TOTAL			OIL (U. S. 7.5 & Ir	mp. 9 lb./gal.)		
lb.	Crew Cargo TOTAL			FUEL (U.S.6&	(lmp. 7.2 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL						
Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Bomb Bay:			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Corrections (If	NDEX (Uncorrected) required) WEIGHT & INDEX		- 71
Ib.	Crew Cargo TOTAL			Recommended	LIMITS d Max. Take-off Gross W d Max. Landing Gross W	eight	
Ib.	Crew Cargo TOTAL			14.	BYBY	,	



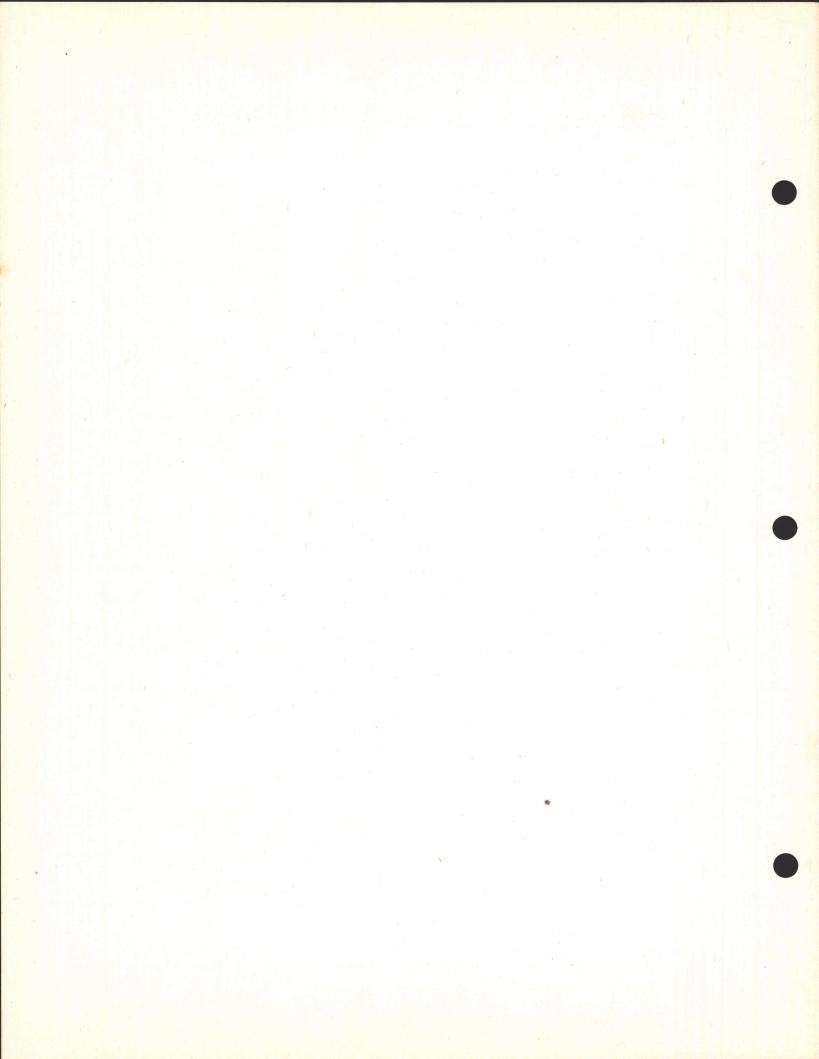
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WEIGHT and BALANCE CLEARANCE

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DATE	MISSION
AIRPLANE	FROM
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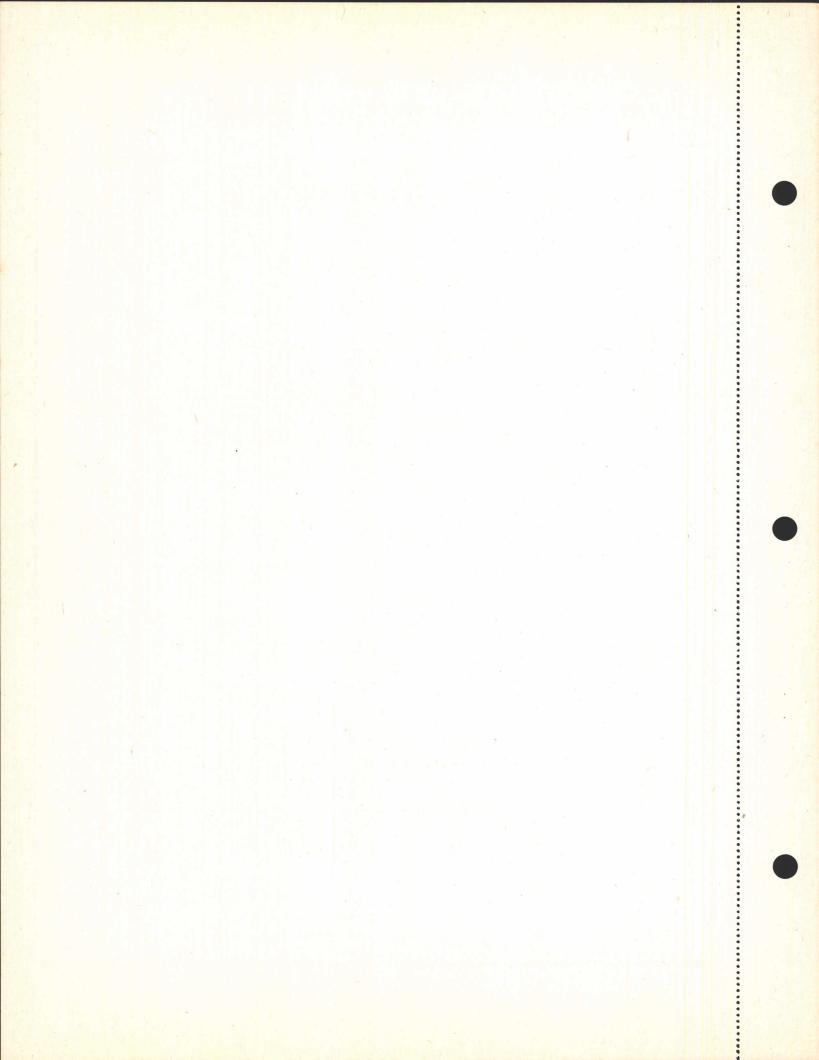
COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT	COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT
Y	Basic Airplane	. 10	V	Y	Totals Brought Forward		
A lb.	Crew Cargo			Q lb.	Crew		
(STRUCTURAL CAPACITY)	TOTAL			(STRUCTURAL CAPACITY)	Cargo TOTAL		
В	Crew			(R)	Crew		
lb.	Cargo			lb.	Cargo		
(STRUCTURAL CAPACITY)	TOTAL			(STRUCTURAL CAPACITY)	TOTAL		
c ,,	Crew			S	Crew		
(STRUCTURAL	Cargo	1		Ib.	Cargo		
CAPACITY)	TOTAL) 		CAPACITY)	TOTAL		- 12
D lb.	Crew Cargo			T lb.	Crew Cargo		
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F	Crew			Compartment			<u>'</u>
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CAPACITY)	TOTAL			(By	- #		
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H) lb.	Crew Cargo			A			
(STRUCTURAL CAPACITY)	TOTAL			F			
	Crew			Forward Aft			
1)lb.	Cargo	A		External			
(STRUCTURAL CAPACITY)	TOTAL			Q External			
J	Crew				****	\ \ \	
lb.		1		OIL (U. S. 7.5 & In	np. 9 lb./gal.)		INDENDMENT OF THE PARTY OF THE PARTY.
(STRUCTURAL CAPACITY)	TOTAL						
K	Crew				,		
Ib.	Cargo TOTAL			FUEL (U.S.6&	Imp. 7.2 lb./gal.)		
CAPACITY)	7	1		1			
L)lb.	Crew Cargo						
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M)	Crew			1			
lb.	Cargo	١,		Bomb Bay:			
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N "	Crew			THE RESIDENCE OF STREET, SANS THE PARTY OF S	DEX (Uncorrected)		
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CAPACITY)	TOTAL			TAKE - OFF V	VEIGHT & INDEX		
O lb.	Crew Cargo			Recommand	LIMITS		
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P lb.	Crew Cargo			COMPUTED B	Υ		*
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B Ib.	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL		
E)	Crew			Minimum Landir	ng Gross Weight		1-4/1
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(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(By Compartment)			
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(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Forward			
Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Aft External			
Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL	2		OIL (U. S. 7.5 & I	mp. 9 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			FUEL (U.S.68	& Imp. 7.2 lb./gal.)		
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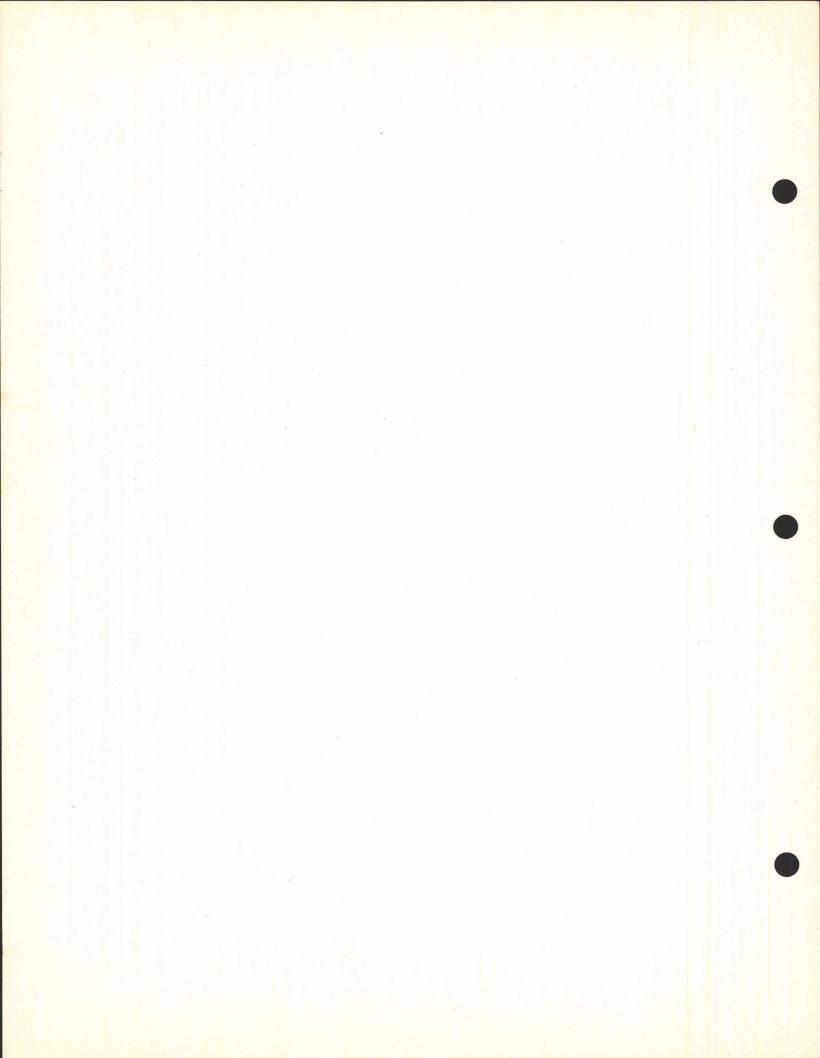
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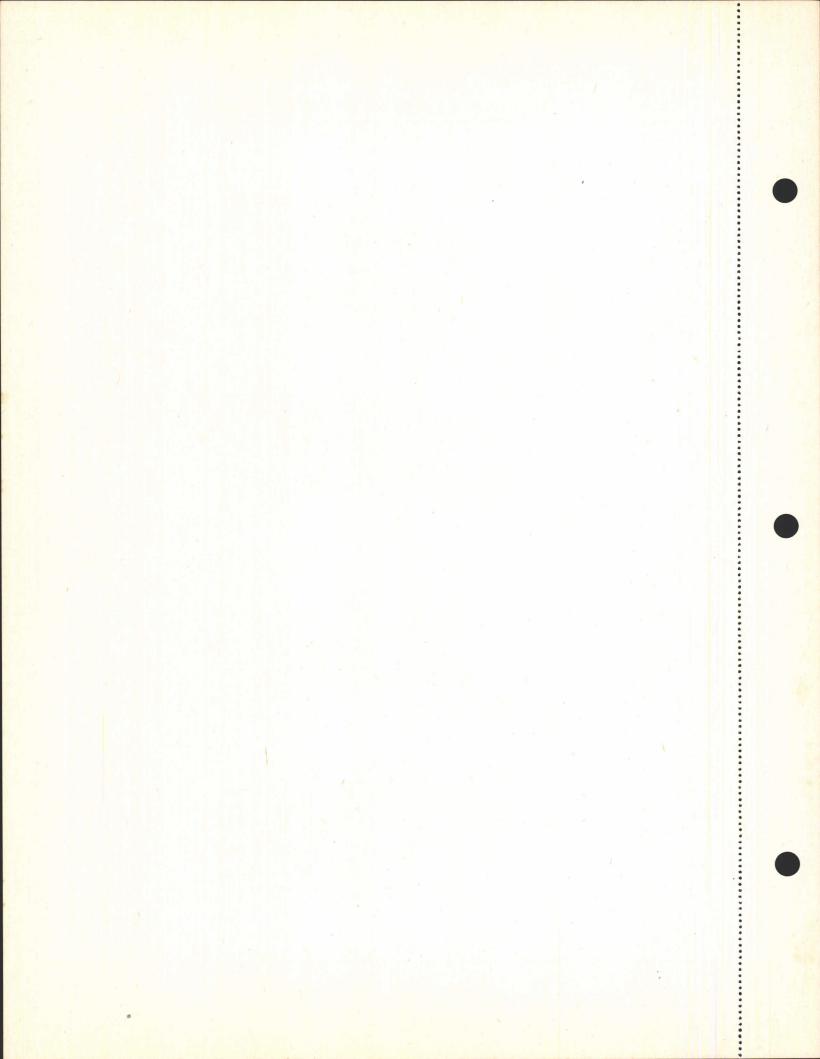
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(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Minimum Landin	g Gross Weight Rd. () Cal.		
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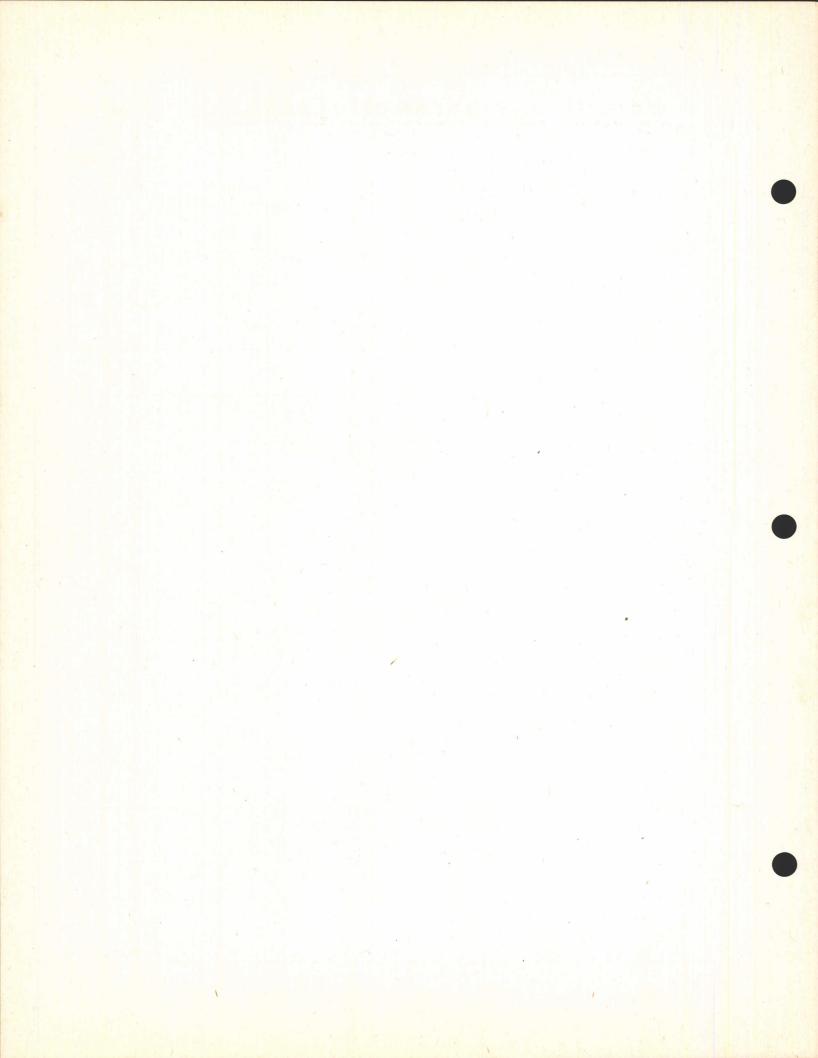
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(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	TOTAL		
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Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			OIL (U. S. 7.5 & I	mp. 9 lb./gal.)		
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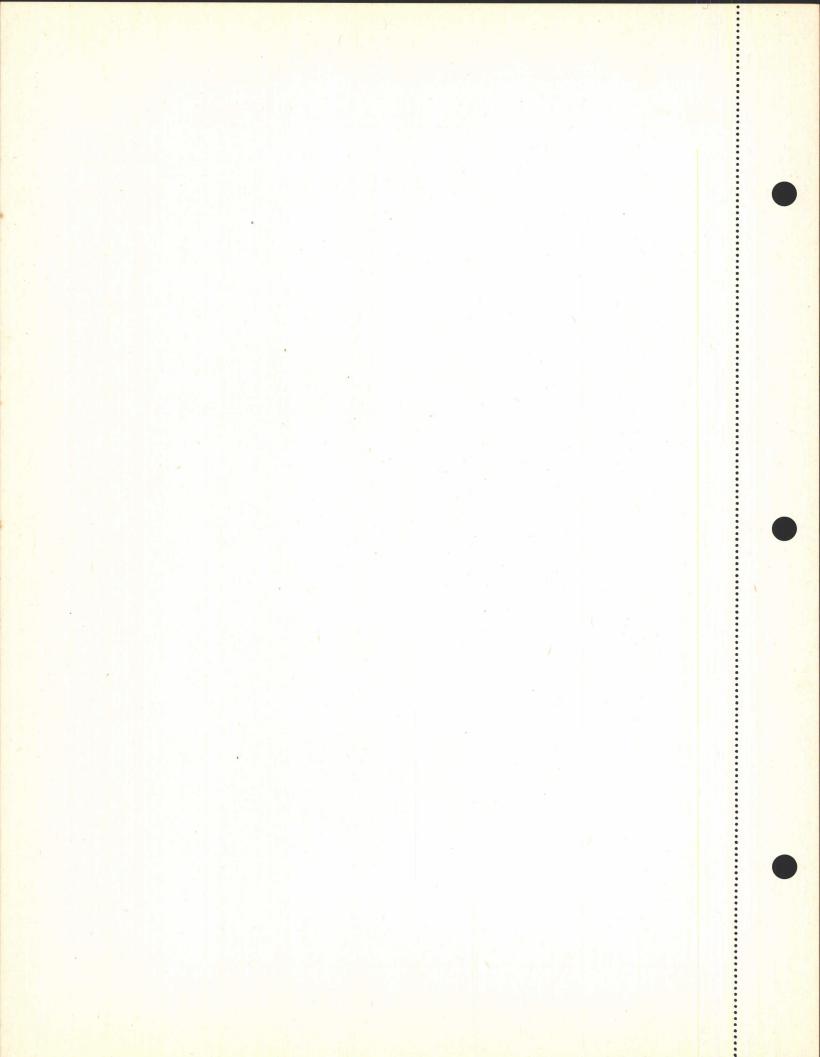
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(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	
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COMPARTMENT	ITEM .	WEIGHT	INDEX OR MOMENT	COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT
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(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Forward			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Aft External			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			OIL (U. S. 7.5 & In	np. 9 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			FUEL (U.S.6&	Imp. 7.2 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL						
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Bomb Bay:			
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			Corrections (If r	IDEX (Uncorrected) required) VEIGHT & INDEX		
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(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			COMPUTED B	SY		
TOTALS TO BE C	ARRIED FORWARD			PILOT			



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(STRUCTURAL CAPACITY)	Crew Cargo TOTAL	•		Forward			
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Ib. (STRUCTURAL CAPACITY)	Crew Cargo TOTAL			OIL (U. S. 7.5 &	Imp. 9 lb./gal.)		
(STRUCTURAL CAPACITY)	Crew Cargo TOTAL			FUEL (U.S.6	& Imp. 7.2 lb./gal.)		
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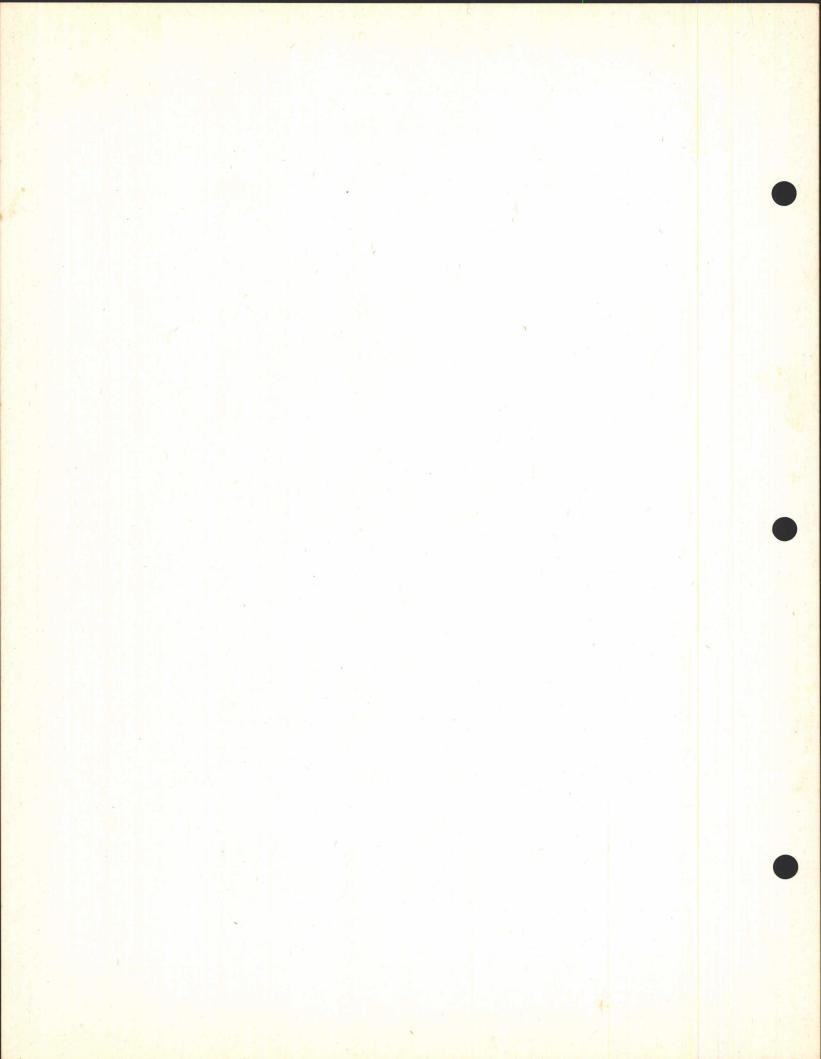
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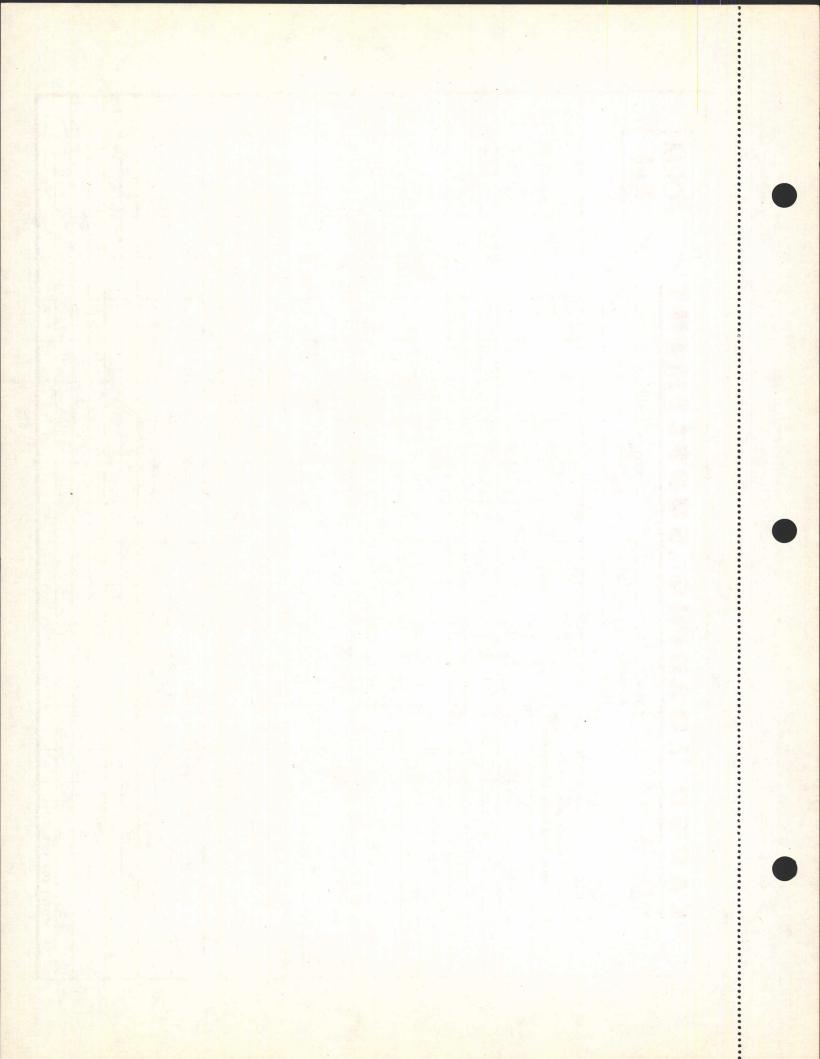
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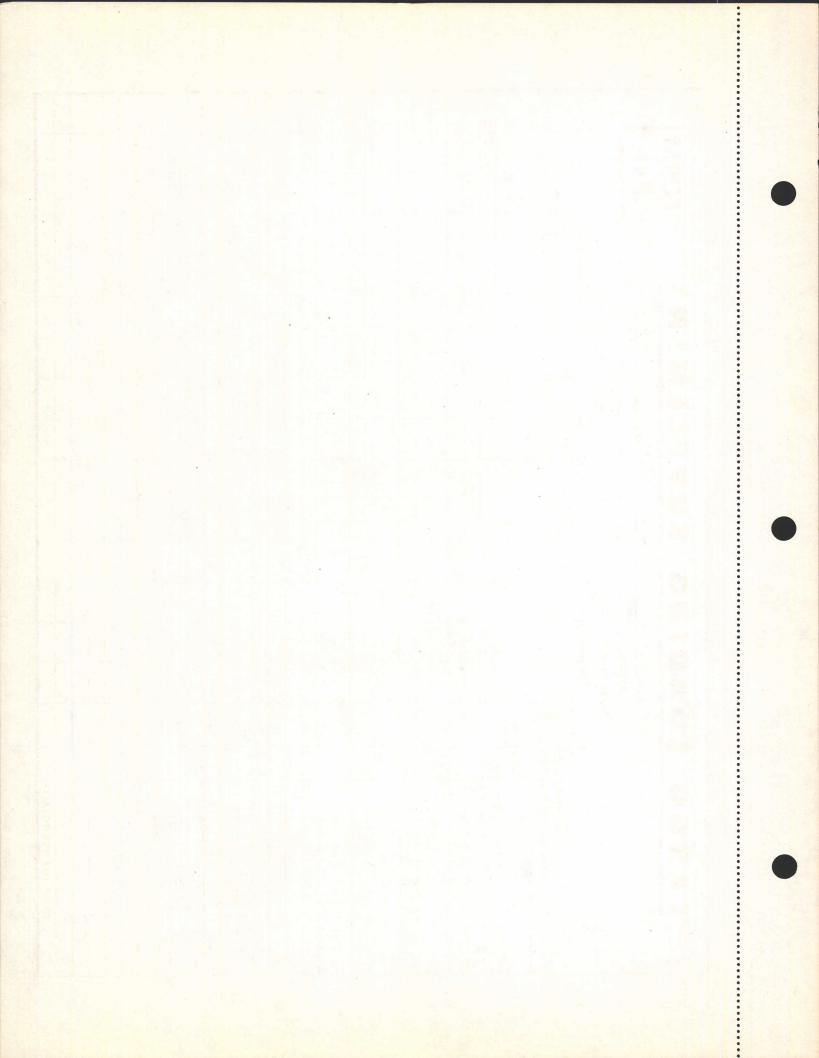
COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT	COMPARTMENT	ITEM	WEIGHT	INDEX OR MOMENT
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C "	Crew	1 1		S	Crew	_	
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F lb.	Cargo			E E			
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G lb.	Cargo			Į į	6/0-39		
(STRUCTURAL CAPACITY)	TOTAL			AMMUNITION			
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lb.	Cargo	V (4			
(STRUCTURAL CAPACITY)	TOTAL			Forward			
1	Crew			∞ Aft			
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J	Сгем	The same of					****
Ib.	Cargo	A CONTRACTOR OF THE PARTY OF TH		OIL (U. S. 7.5 & In	np. 9 lb./gal.)		4
CAPACITY)	TOTAL						
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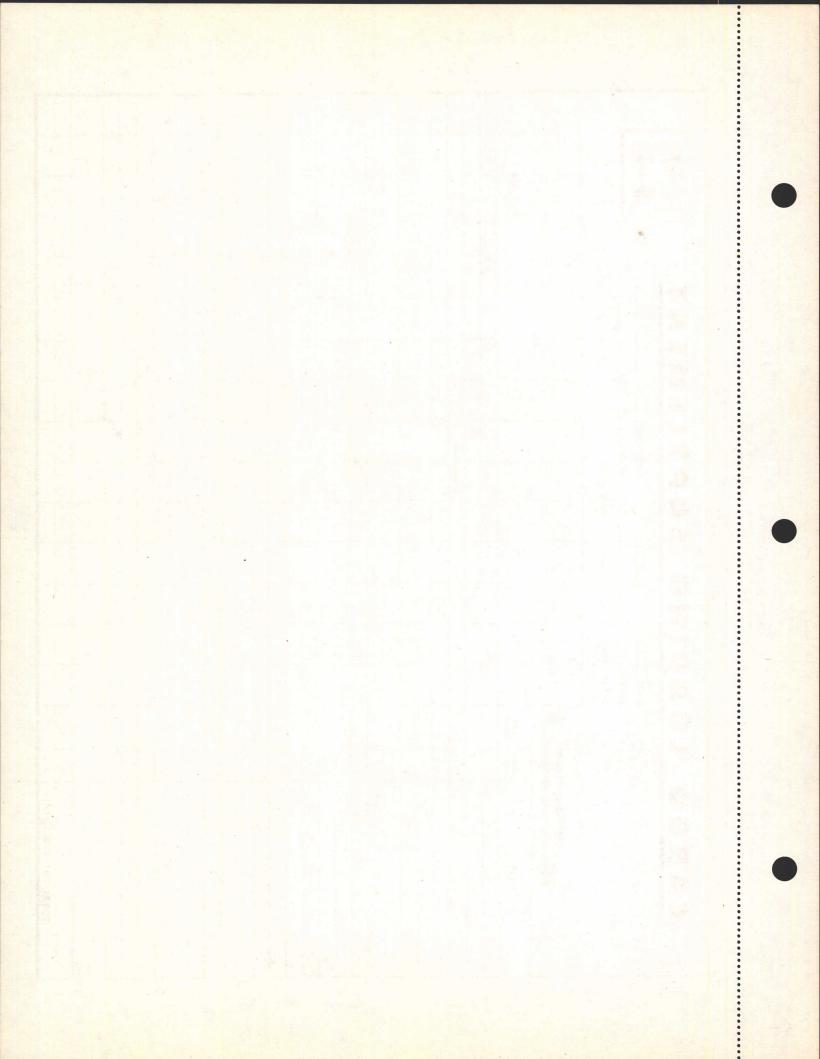
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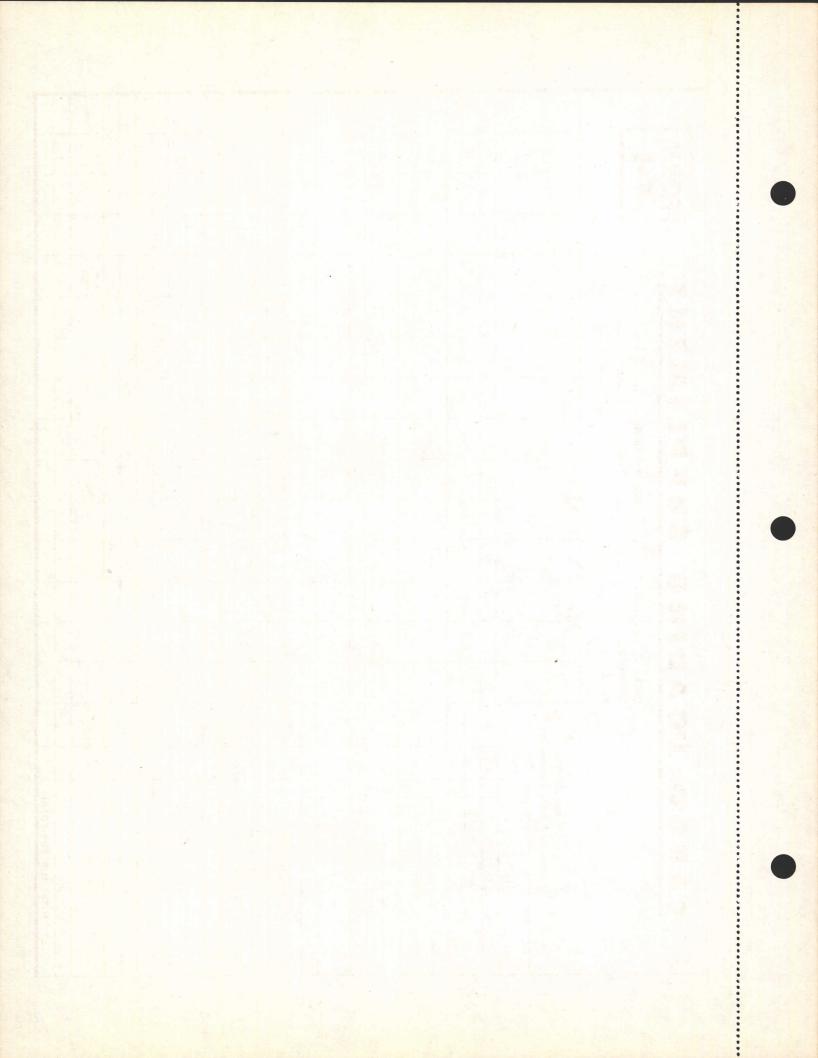
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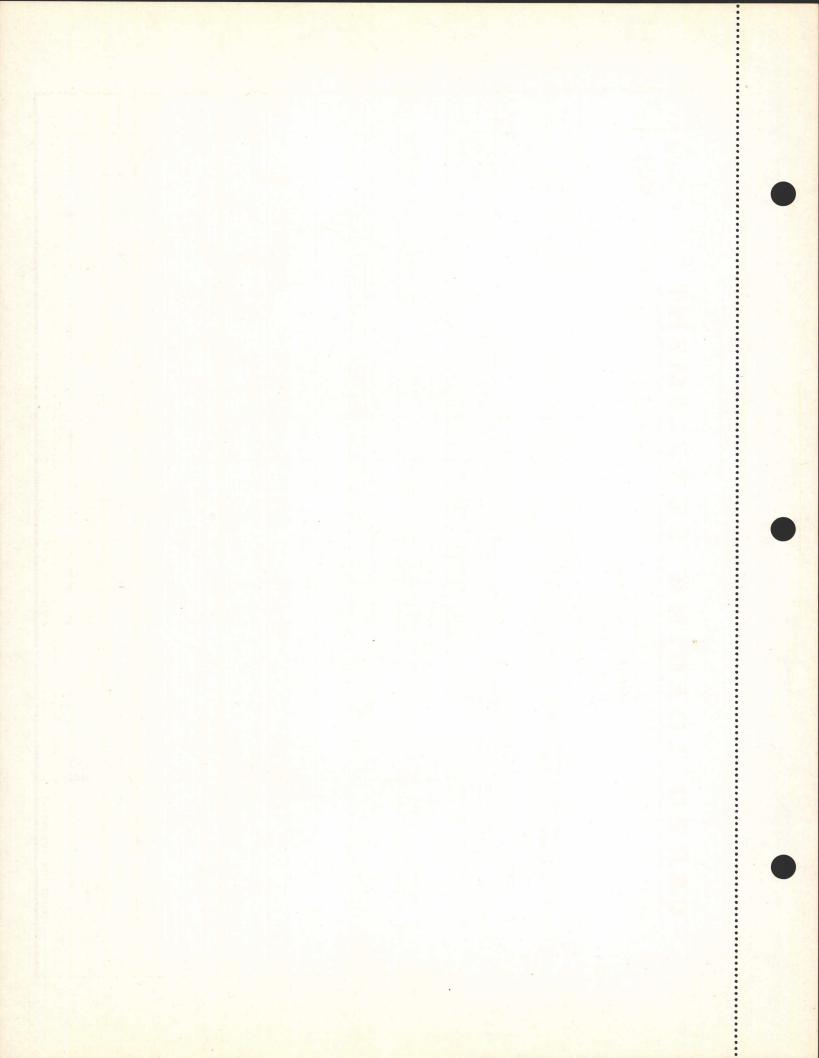
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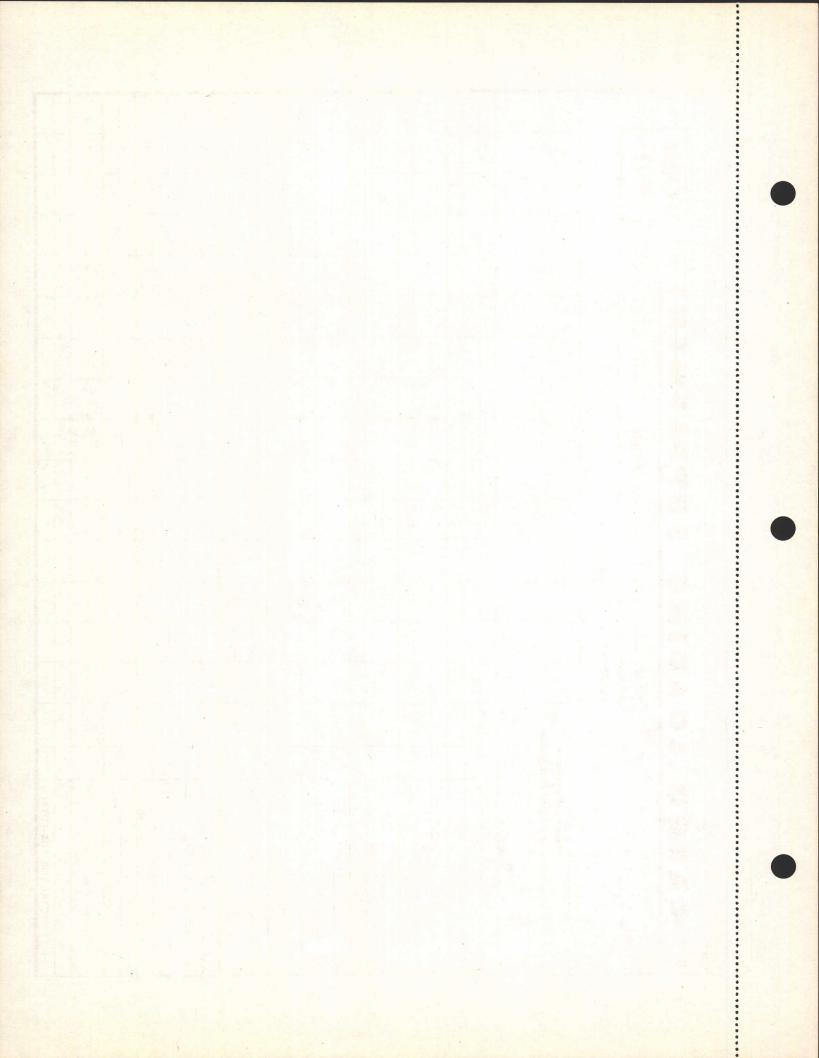
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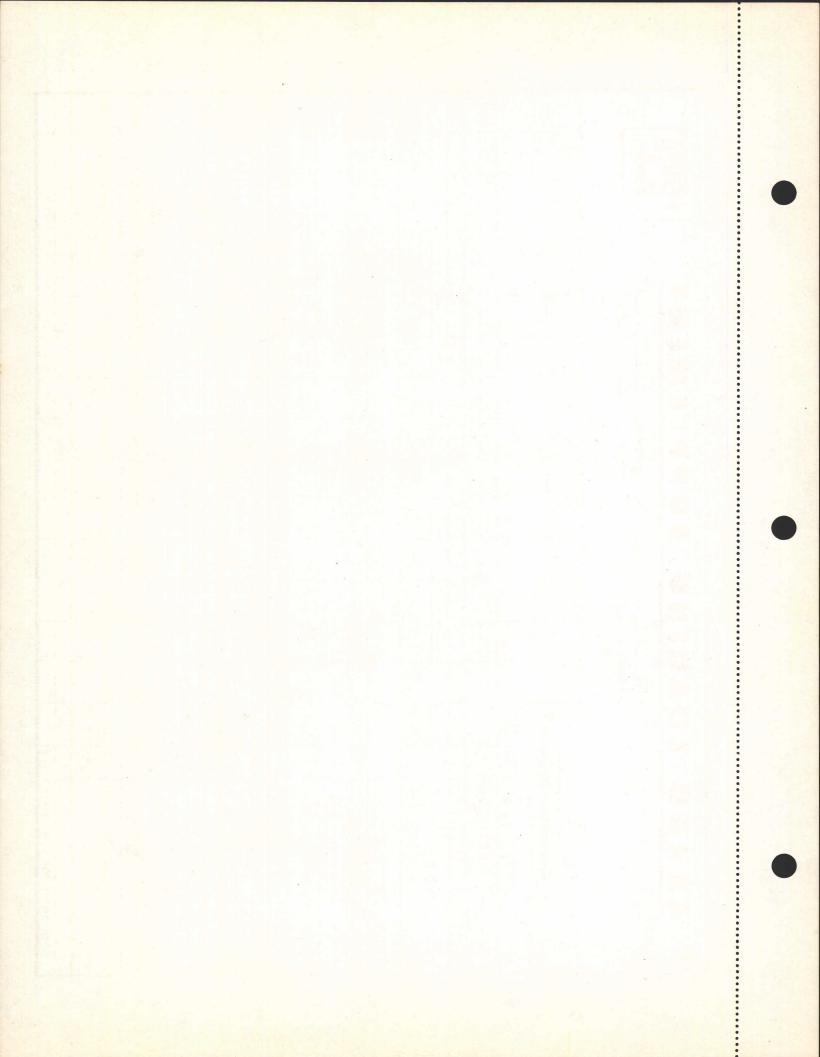
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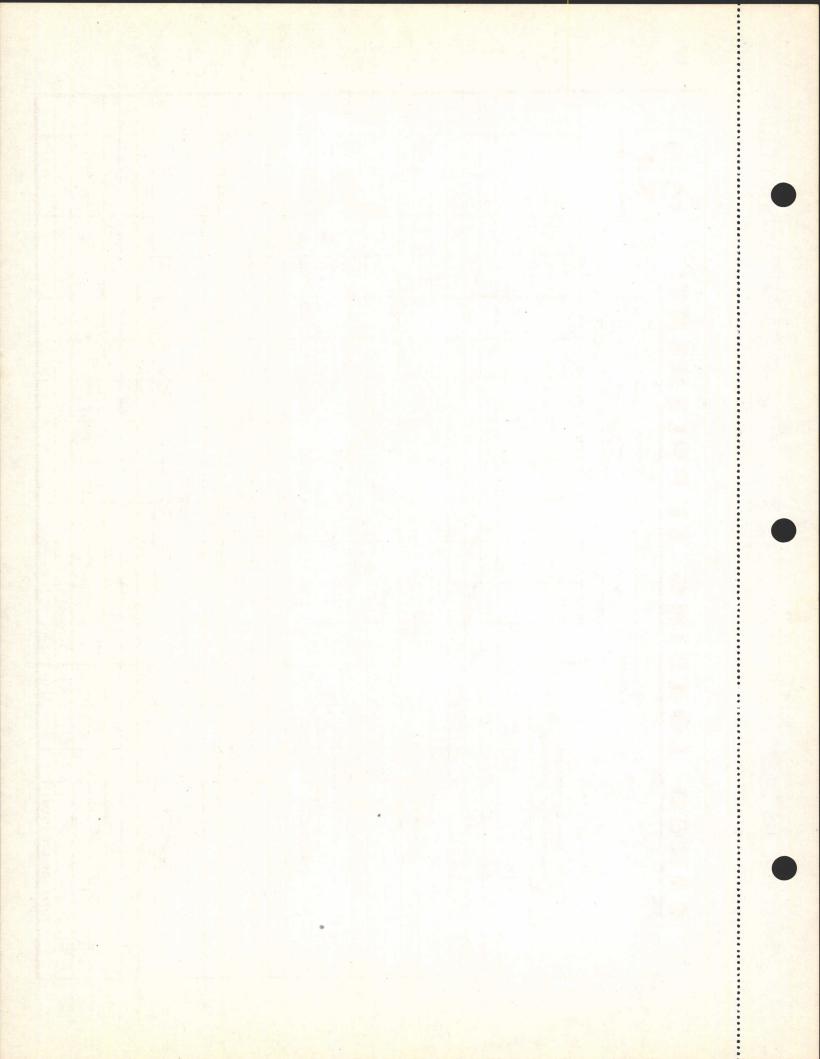
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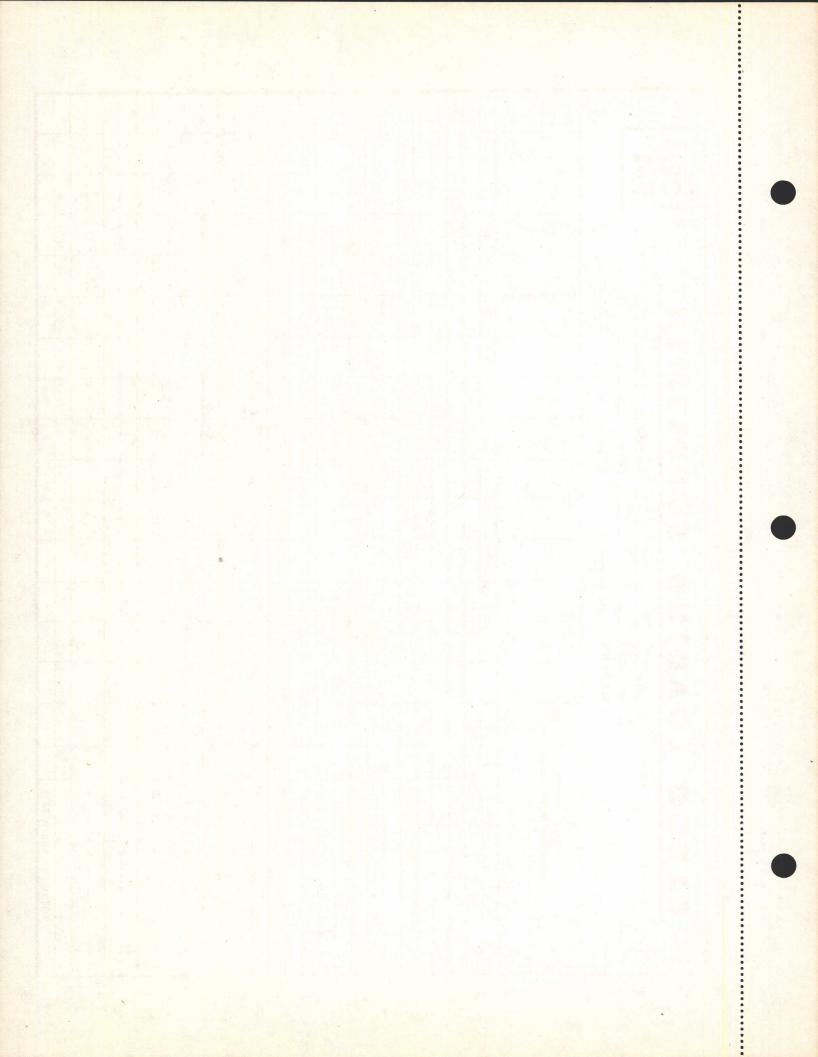
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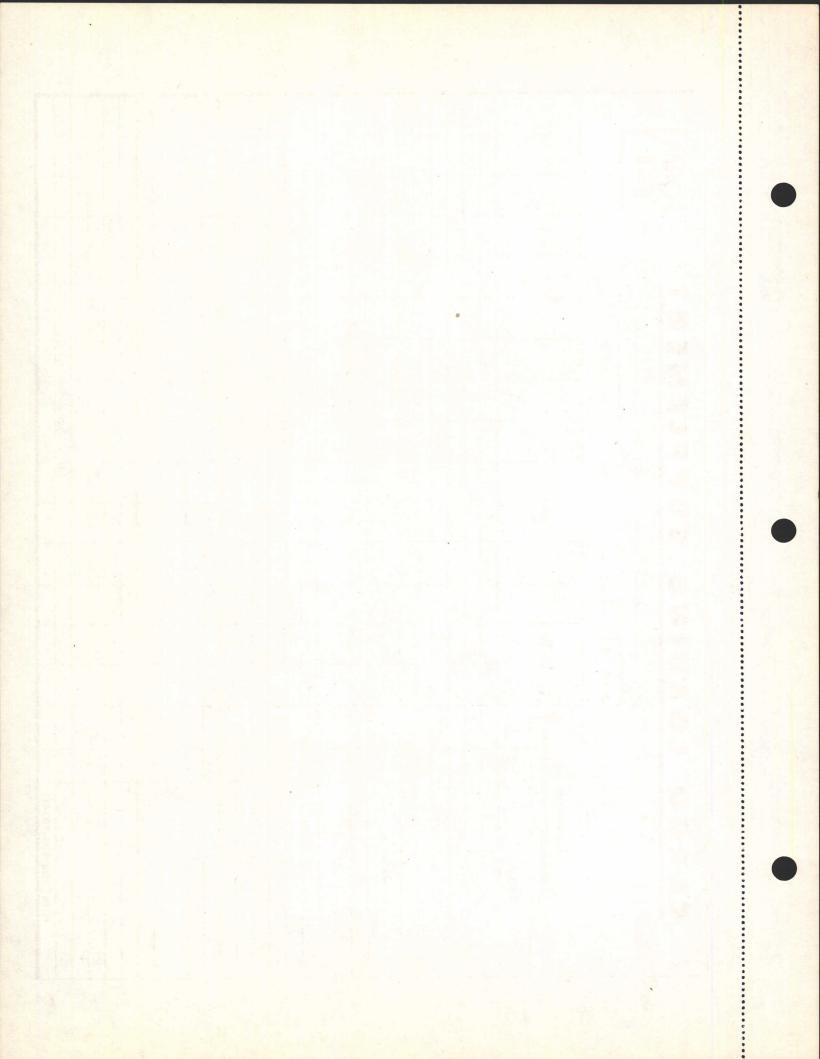
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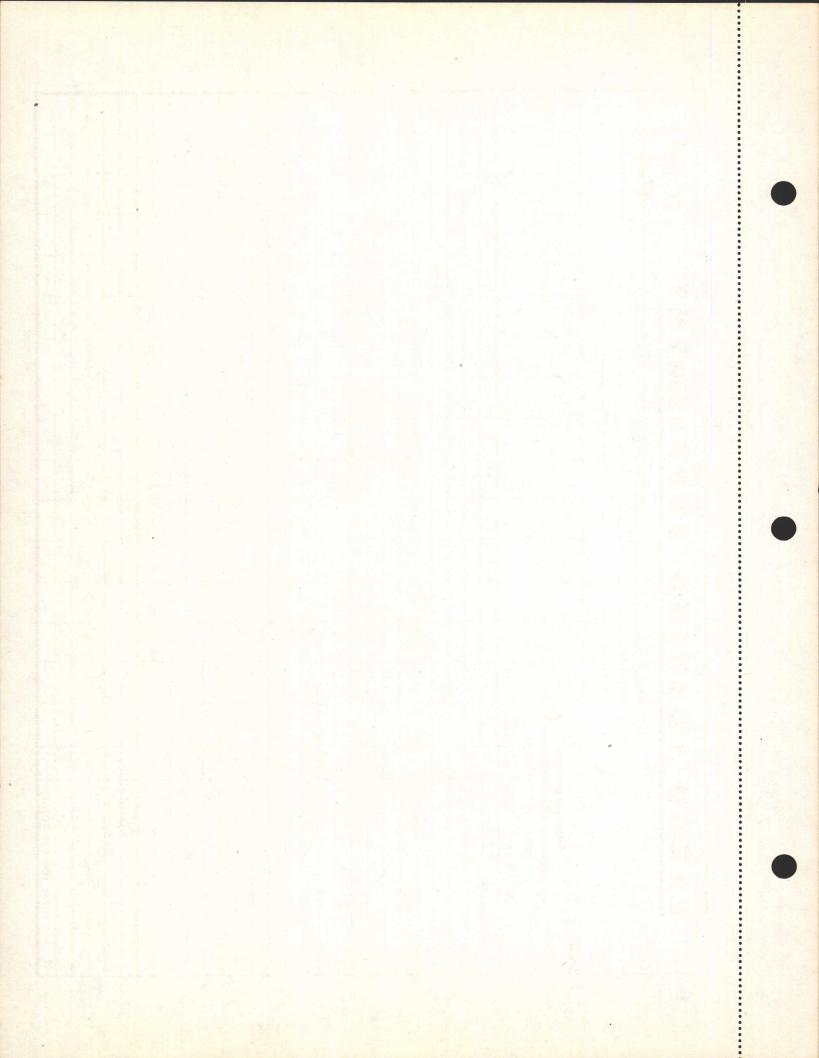
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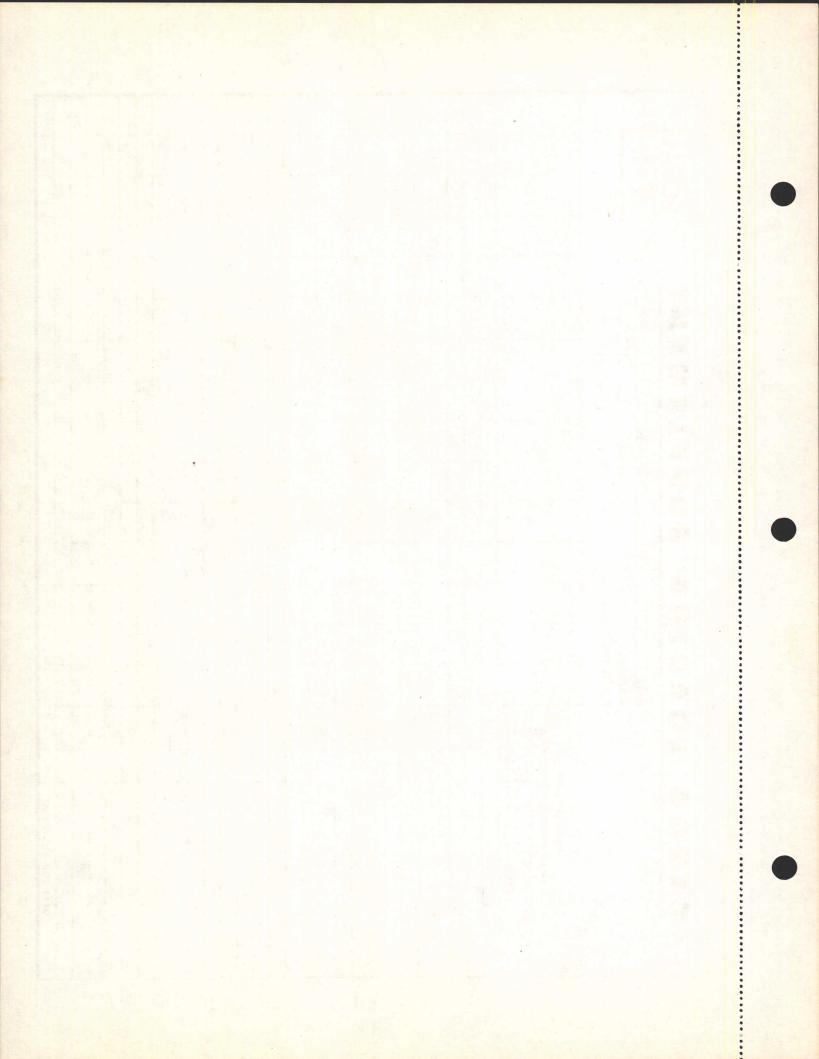
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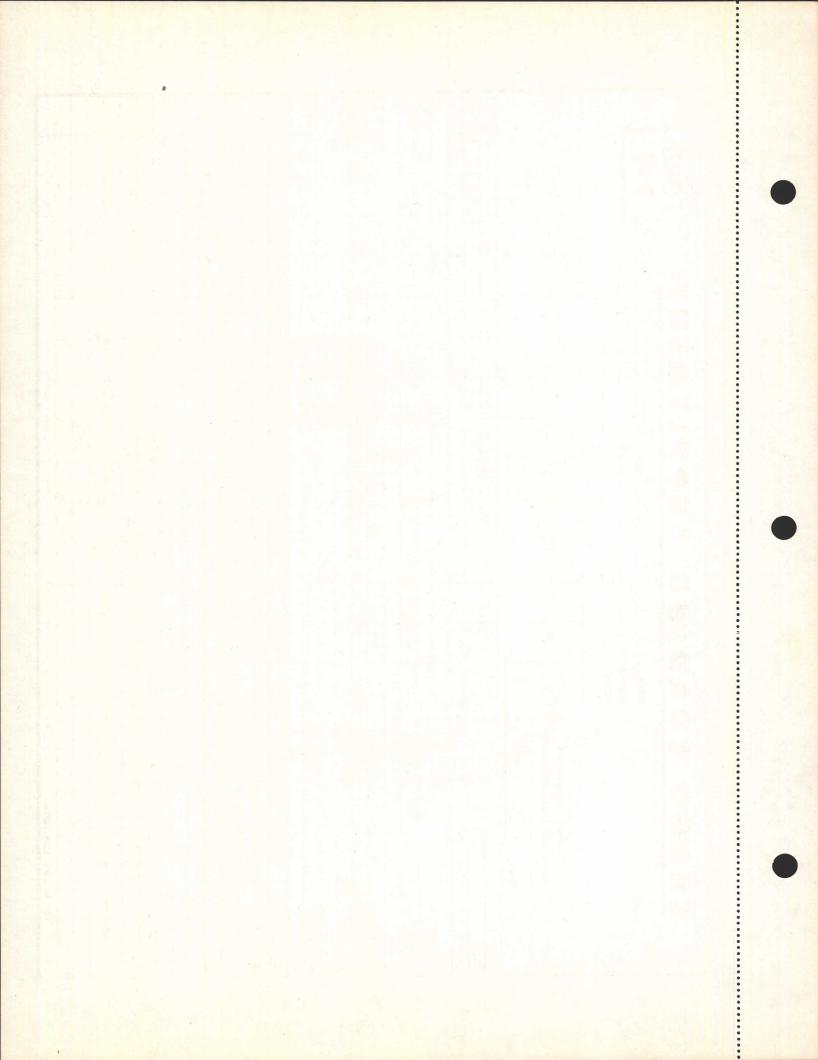
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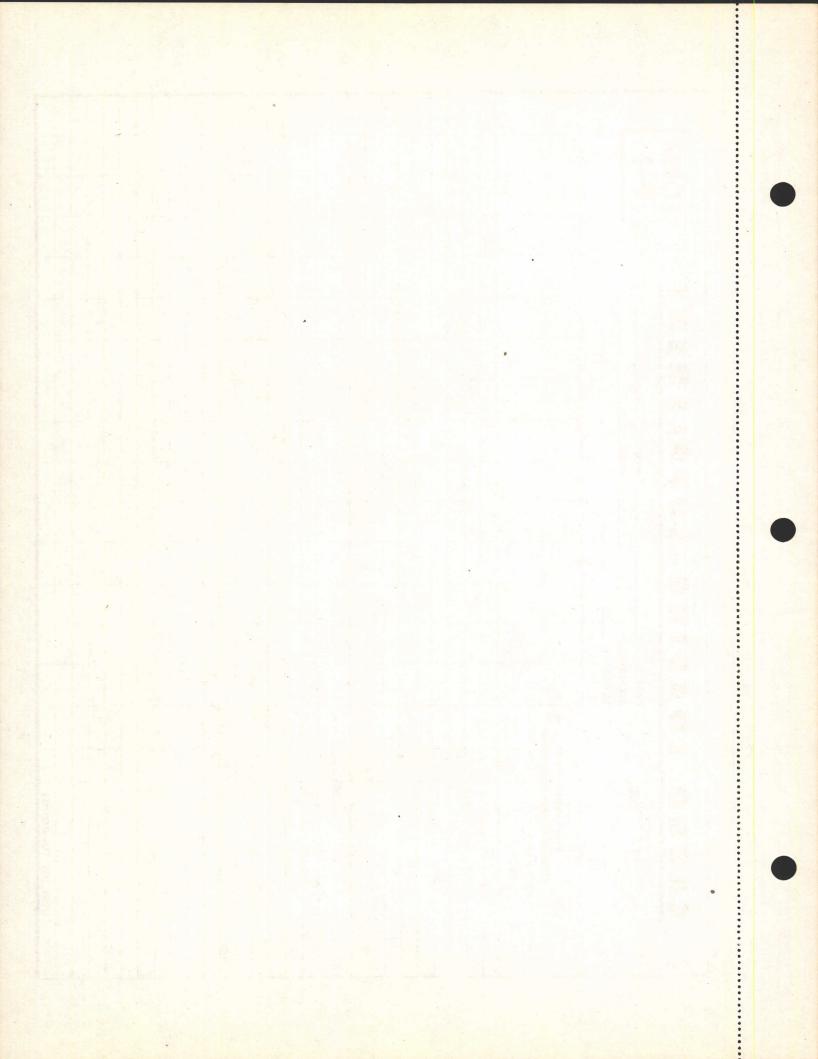
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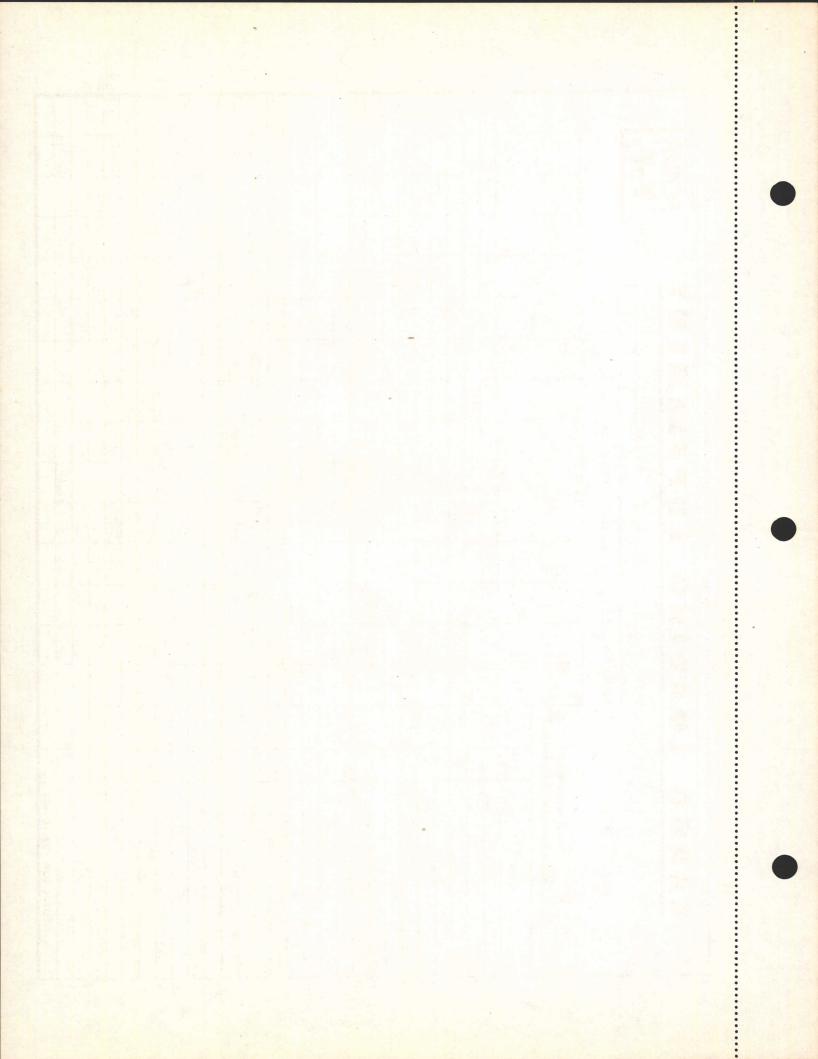
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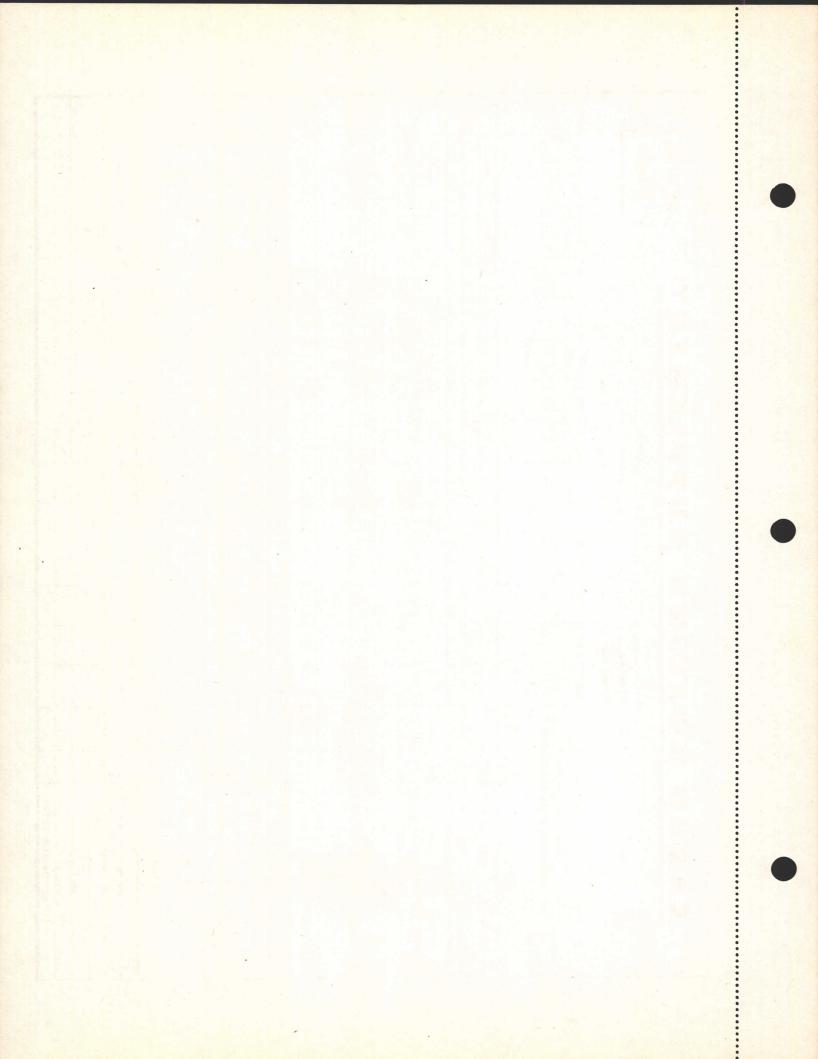
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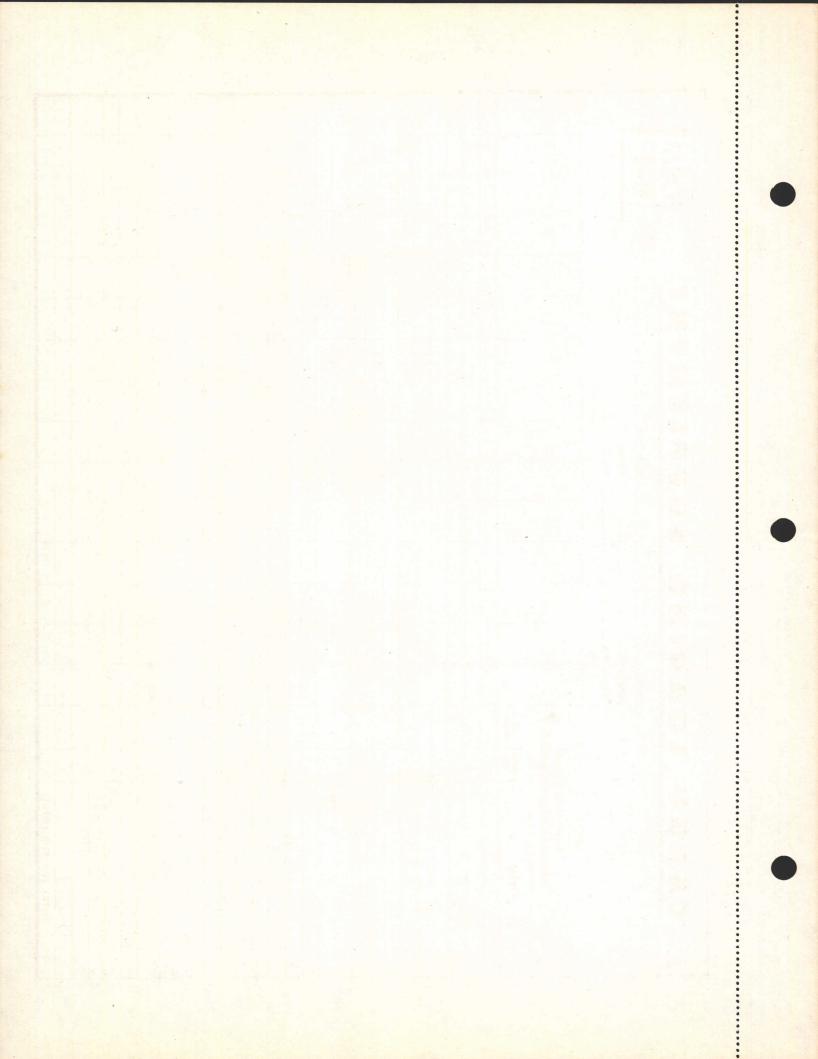
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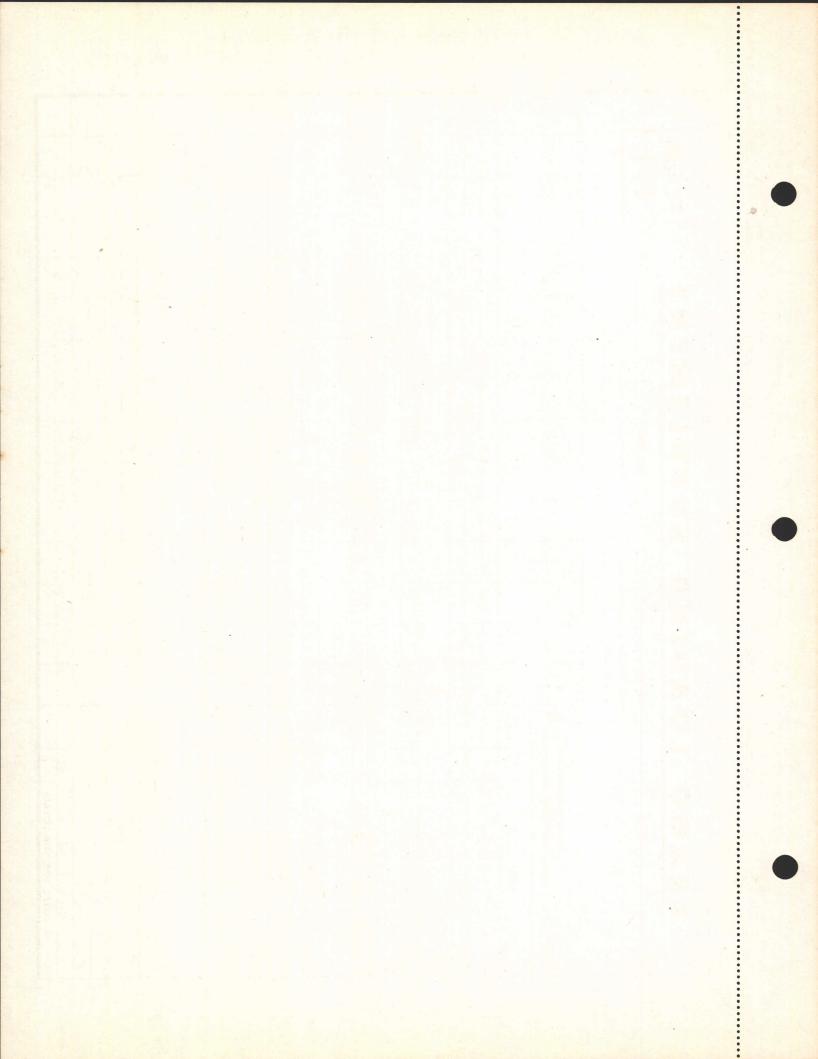
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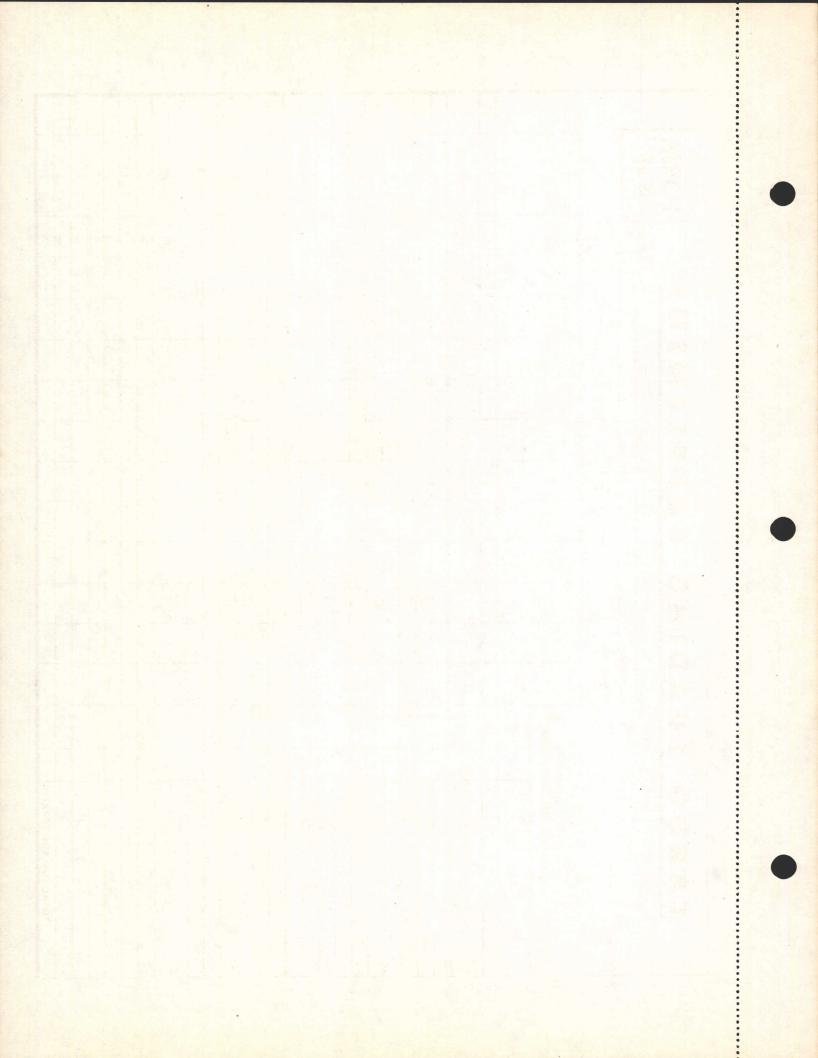
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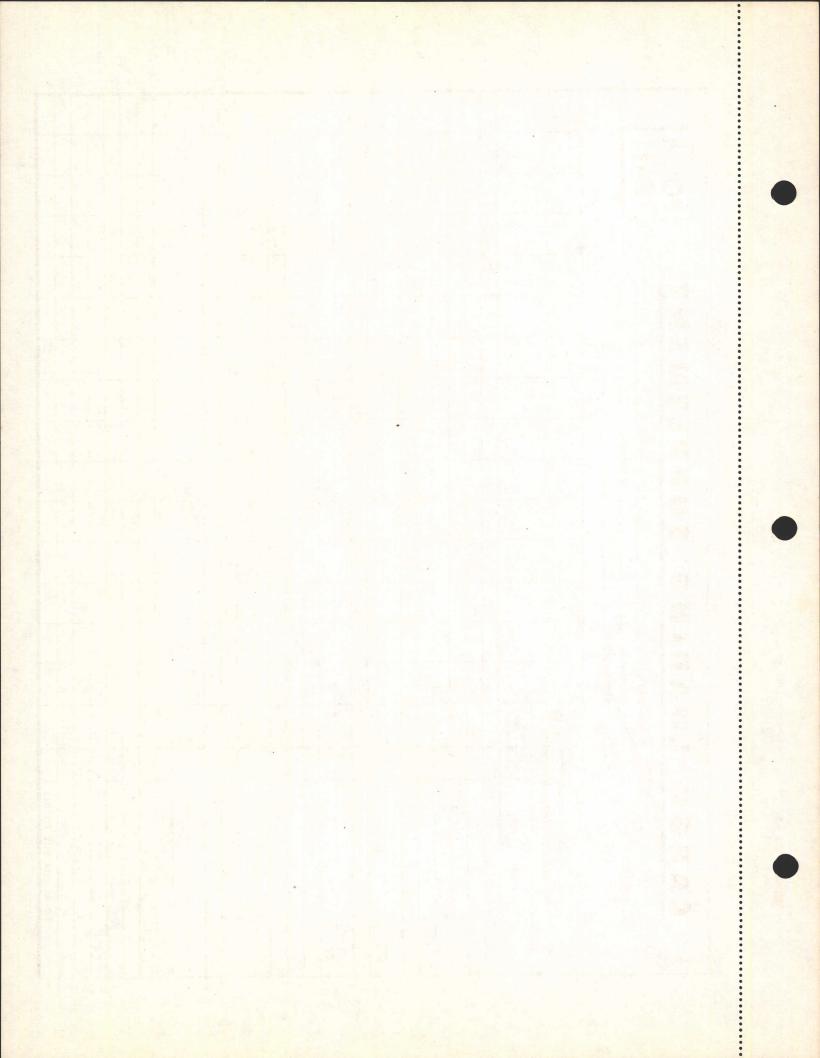
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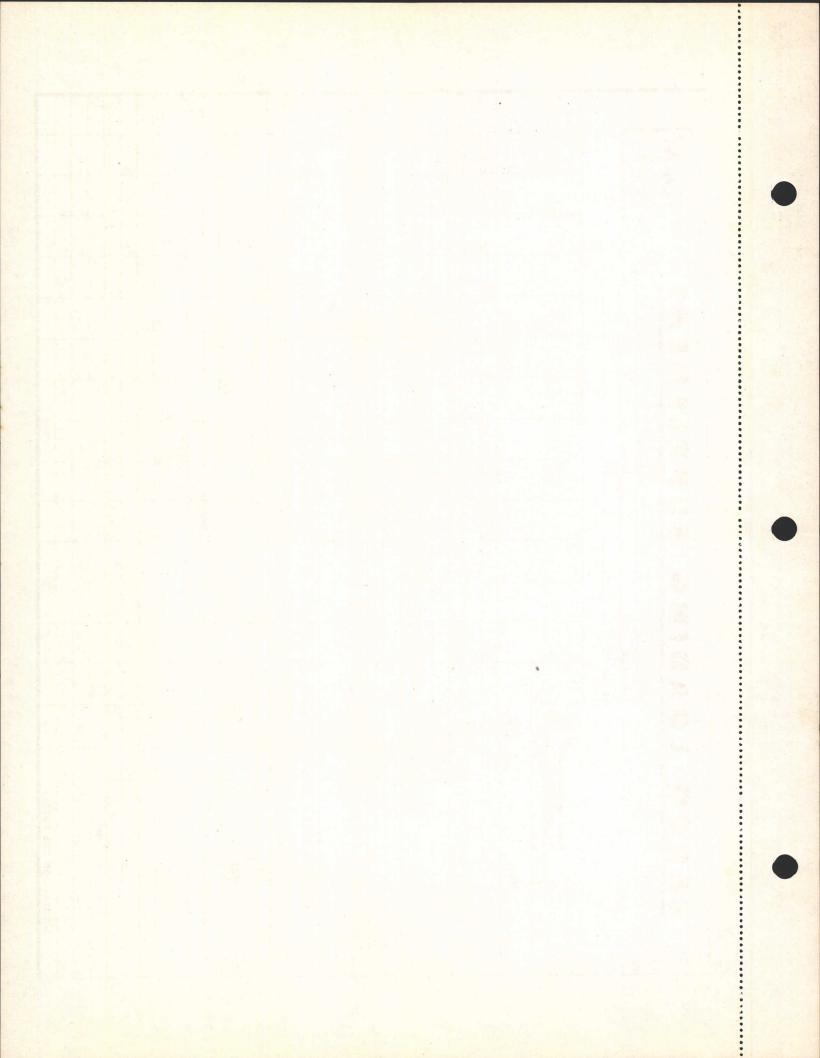
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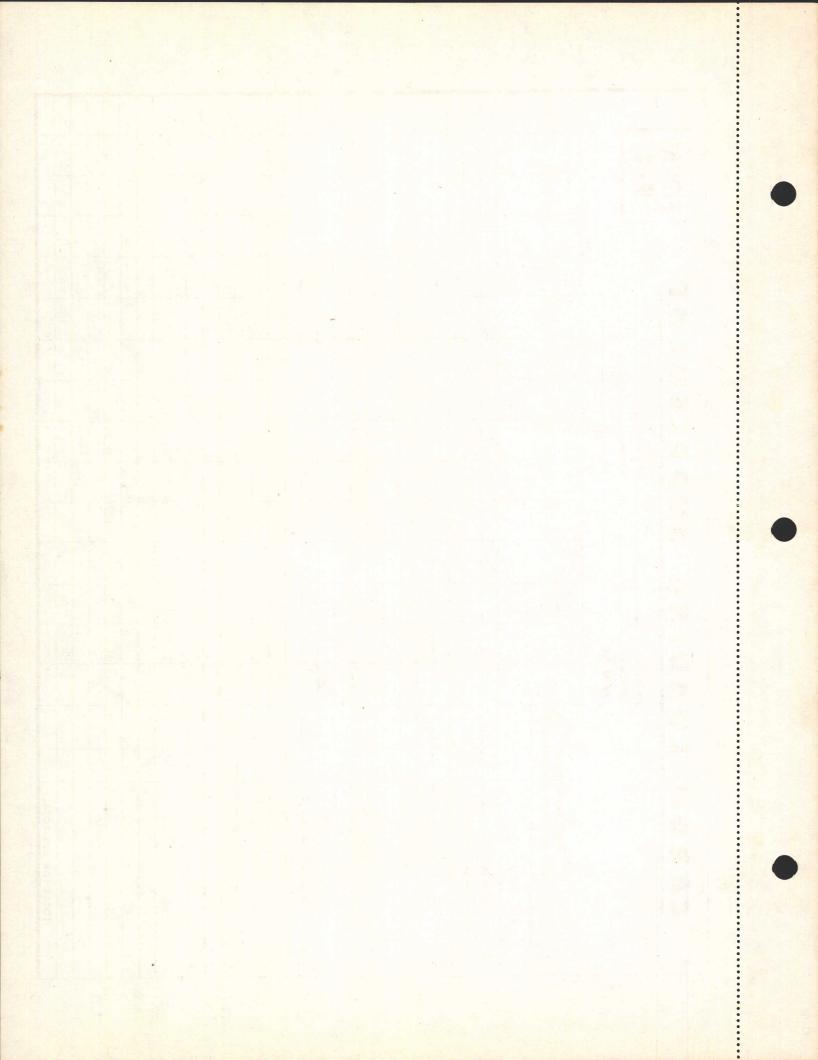
FORM MISSION_FROM 10 COADING SERIAL NO. DATE UNIT. WEIGHT Insert compartment name and letter designation QUAN-CARGO TOTAL (OR SUB-TOTAL) ITEM 2-12-43



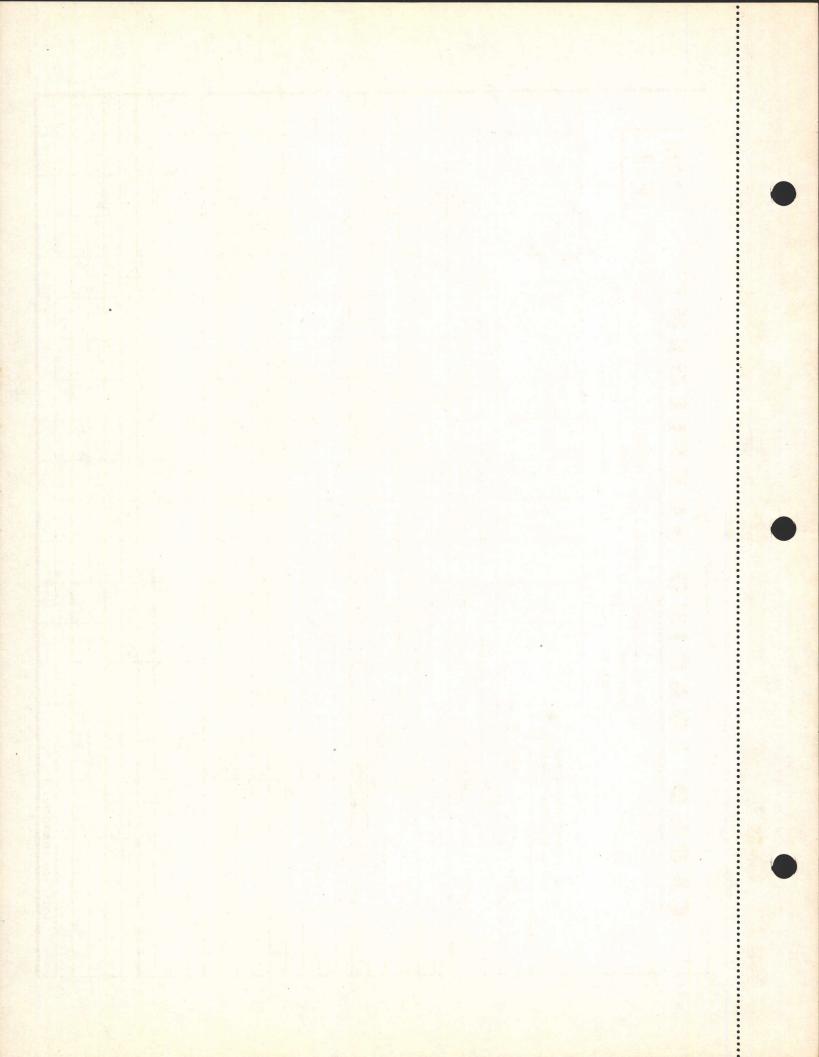
MISSION 10 COADIA SERIAL NO. DATE WEIGHT Insert compartment name and letter designation QUAN-CARGO TOTAL (OR SUB-TOTAL) ITEM 2-12-43



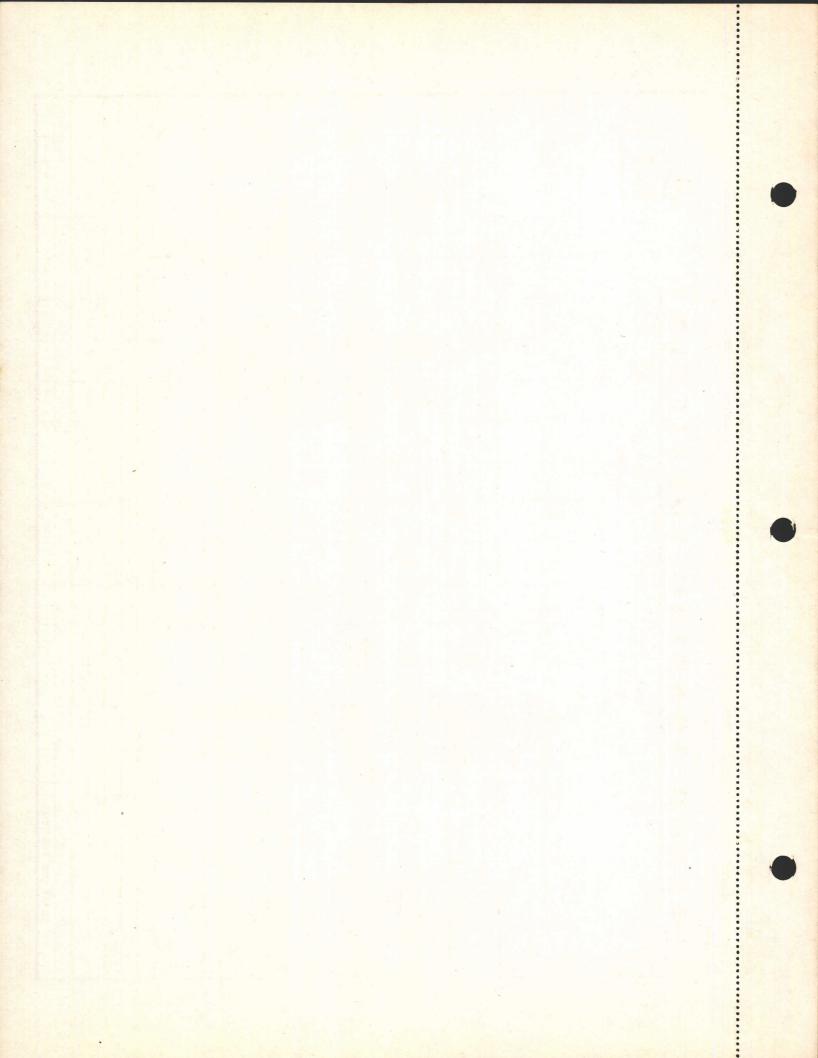
MISSION_FROM_ TO CONDI SERIAL NO. DATE Insert compartment name and letter designation QUAN-CARGO TOTAL (OR SUB-TOTAL) ITEM 5-15-43



MISSION_FROM_ 10 COADIA SERIAL NO. DATE name and letter designation WEIGHT QUAN-CARGO TOTAL (OR SUB-TOTAL) ITEM 2-12-43



FORM MISSION_ FROM_ TO_ W DNONO SERIAL NO. DATE name and letter designation UNIT QUAN-CARGO TOTAL (OR SUB-TOTAL) ITEM 2-12-43



MISSION_ FROM_ TO_ COADING SERIAL NO. name and letter designation WEIGHT QUAN-CARGO TOTAL (OR SUB-TOTAL) ITEM 2-12-43

